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AGRICULTURAL WRITERS.

FROM

SIR WALTER OF HENLEY TO ARTHUR YOUNG,

1200-1800.

AGRICULTURAL WRITERS,

FROM

SIR WALTER OF HENLEY TO ARTHUR YOUNG,
1200—1800.

REPRODUCTIONS IN FACSIMILE AND EXTRACTS FROM THEIR ACTUAL
WRITINGS, ENLARGED AND REVISED FROM ARTICLES WHICH HAVE
APPEARED IN "THE FIELD," FROM 1903 TO 1907.

TO WHICH IS ADDED AN EXHAUSTIVE BIBLIOGRAPHY.

BY

DONALD McDONALD
(*Fellow of the Linnean Society*).

LONDON:
HORACE COX,
"FIELD" OFFICE, WINDSOR HOUSE, BREAM'S BUILDINGS.

—
1908.

LONDON ·

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“The produce of the husbandman’s labours is the only merchandise which all the world is obliged to deal in, and it was such a consideration that induced many early writers to recommend agriculture as the most profitable of all the arts.

“War, navigation, and commerce can never dispeople a wise nation whose agriculture flourishes in full vigour, as industrious nations are the most populous as well as the most virtuous. Industry is the vis matrix of husbandry.”

• • •

CANON HARTE, “Essays on Husbandry.”

HISTORICAL INTRODUCTION.



AGRICULTURE is the art of obtaining, from the earth, food for the sustenance of man and his domestic animals, and the perfection of the art is to obtain the greatest possible produce at the smallest possible expense. Upon the importance of the art it is needless to expatiate, for, by it every country is enabled to support in comfort an abundant population. On this its strength as a nation depends, and, by it, an independence is secured. An agricultural country has within itself the necessities of life, and to maintain these there will never be wanting a host of patriotic men.

The origin of the simplest arts of life is involved in the obscurity which envelops the early history of the human race. Before there can be any motives to record events, some considerable progress must have been made in civilisation. When attention is altogether directed to obtaining the means of subsistence, there is little leisure, nor is there any great desire, to communicate the knowledge acquired by experience. Warlike achievements are the first things recorded, and the peaceful labours of the husbandmen are overlooked. It has been often observed that nations are very considerably advanced in civilisation before they commit to writing, records or memorials of any kind, and that a much greater progression has been made before any notice has been bestowed upon the most simple and necessary of all the arts of practice, in the employment of the earth for providing the necessities of life.

In tracing the progress of an art from the lives and writings of the inventors and improvers, the practical knowledge is derived which sees the foundation of the system that has been followed, and perceives the difficulties that are to be overcome and the contentions that are to be encountered in making the least deviation from established usages; and in this respect learning received advantages from the invention of printing, which spread the dominion of knowledge to an immeasurable distance beyond its former limits, and there soon appeared a necessity of collecting and condensing the widely scattered materials into such limited forms as were easy of manipulation and distribution. In the oldest writings which have been handed down to us it is a curious fact that the common operations of husbandry are mentioned or alluded to in much the same terms in which we should describe them now, and so are many of the implements and also the productions, but they are

only mentioned incidentally. It required a very advanced state of the arts and of literature to produce in those days a treatise on any one practical subject exclusively, and the simpler and more common the arts the less they are noticed in the early literature of a nation, and there would seem to be no other means of tracing the progress of husbandry than by the manuscripts of the monks who troubled to record the experiences of their labours.

The science of agriculture is remarkable for the few great names whose discoveries or writings thereon adorn its early history. For an explanation of this fact we must in some measure be contented with the commonplace observation, that its advances, and improvements, were so slow in coming as to be almost imperceptible. The great wonder is that men should have looked upon nature so long and yet have known so little about her. Out of some sixty centuries that make up the history of the world as we know it, take away but the last and what a loss to that great science, yet but little valued in its true importance, which explains the growth and structure of all forms of life? It is claimed that, as the progress of the art altered with every condition at every step, the early literature proved itself useless and was distrusted when every rule laid down was found false on application. Another impediment to agricultural knowledge was found in the conditions of the life of the farmer, always more or less localised or isolated and lacking the salutary influence of that mental attrition caused by the aggregation of numbers in towns. Thus encircled with difficulties requiring, for the attainment of considerable eminence, the union of both practice and experience, we need hardly feel surprised that the few illustrious exceptions to the general rule have appeared at very distant intervals to describe in print the inventions and improvements of their time.

In Britain it was not until the end of the eleventh century that the practice of agriculture was honoured with a written notice, so that previously to this time we have no means of tracing the progress of the industry other than by those ancient writers who discoursed upon the subject. The Domesday Book describes the agricultural aspect of the kingdom at the Norman Conquest as being generally in uninclosed pasturage or covered with vast tracts of forest and unproductive coppice. Much of the otherwise waste land was given over to the monasteries, and it was under the protection afforded by the religious houses, the abbots of which paid more attention to the moral and material welfare of their dependents, that the lands belonging to them were better cultivated and more thickly inhabited than the estates belonging to the feudal lords (whose whole time seems to have been engaged in fighting), and the earliest improvements in English husbandry must be ascribed to their skill and industry.

In the early part of the eighteenth century, and thence to the present time, a different class of men have engaged in the cultivation of the soil.

The accumulation of wealth from the vast increase and improvement of manufactures and commerce, the better diffusion of information, and the increased population have all contributed to this effect. Individuals engaged in the pursuit, whose education and habits required a larger income for their indulgence than could be afforded from the profits of a small farm, engaged in the occupation of much larger areas, extending even to over one thousand acres. From none of these facts, however, have arisen any splendid discoveries, for such are not to be made in agriculture; there never can arise, so far as I can foresee, any Newton or Watt in this art, but these enlightened cultivators have effected and are accomplishing all that modern advantages can be expected to perform. They have occasioned the collision of opinion, they have stimulated the desire for improvement, and they have promoted the general communication of its requirements.

The improvements which were in due time effected to remedy deficiencies, consisted of a series of moves each depending on the other. Two things were desirable, to increase the extent of culturable soil for grain crops; and to raise sufficient food for cattle and horses all the year round; now these desirable points involved a thorough change in the practice of husbandry. How was it possible to break up and profitably cultivate indifferent soils, much of which had hitherto been considered beyond all hope of improvement, without an abundant supply of manure, and how could the manure be procured without keeping large herds of cattle, for which there was evidently no means of subsistence? To overcome these difficulties it was found necessary in the first place to introduce what are called green crops, that is, crops of artificial grasses, including clover, turnips and other roots and plants, for by having a proper supply of these substances, two important ends were gained, the support of stock for manure, and the alternation of green with grain crops, thus at once enriching the land, and relieving it from the scourging obligation to raise corn successfully. On these main points, then, along with plans for drawing off by artificial drainage, the surplus water lodged in or upon the soil, hang the great agricultural improvements of modern time.

As to the literature on the subject, a prejudice has hitherto existed among farmers against the agricultural knowledge contained in books, but there are signs that these stagnant cultivators are gradually disappearing. Ignorance is always bigoted and obstinate, and it is the same mental sterility which made them formerly jealous of all new practices. I heartily rejoice at this, and hope to see them more and more a class of reading men. Practice must always be their chief tutor, but it is invariably found most correct in its details when founded upon some scientific knowledge. Foremost, then, among the primary circumstances which caused the change was the publication of numerous and valuable contributions to agricultural literature during the eighteenth century, and

there can be no doubt that the communication of information through the instrumentality of books and journals promoted the advancement of the art more than any other means. I do not say that a practical farmer is to take as gospel all he reads in print, but there can be no reason why he should not reflect upon what he reads, make small experiments and extend them according to the value he has found in them. Further powerful influences in promoting this spirit of improvement was the formation of a number of societies for the diffusion of knowledge, the encouragement of correct observations and beneficial discoveries. In 1724 was instituted the Society of Improvers of Agriculture in Scotland.

The Dublin Society was formed in 1749, and still doing good work in Ireland; next came the Bath and West of England Society, established in 1777, and the Highland Society of Scotland, in 1784, and both of these great institutions are still going strong in the dissemination of knowledge. Then came the foundation of the Board of Agriculture in 1793, under the presidency of Sir John Sinclair, Bart. By means of this institution great numbers of intelligent practical men were brought forward, who otherwise would probably never have been heard of, and, being professedly concerned in farm management, agriculture generally was rescued from the hands of theorists, and a revolution of no small extent in ways and means was accomplished.* The numerous surveys of the art as practised in various counties, executed under the authority of the Board, were of singular advantage, for whilst they pointed out obstacles that lay in the way of improvement, they stated the most effectual methods of removing them. In fact, the Board in a few years collected a mass of agricultural information never equalled by the accumulated stores of any other nation, and this good work was continued until 1819, when it was deemed unnecessary by Parliament, and, the annual vote for its support being withdrawn, it ceased to exist, and was not again constructed until within the last twenty years. During the period which has elapsed since the last edition of Arthur Young's "Farm Calendar," agriculture has benefited by mechanical ingenuity, by extended resources and individual experiment vastly more than during any similar period of history. No doubt the foundation of our present Royal Agricultural Society, in 1838, had a deal to do with the change as this great institution, including many similar associations now established in every county, has stimulated cultivators, by the offer of premiums and other honorary awards; consequently the whole business is no longer an act of labour, but is a science, and it is generally admitted that the present Board of Agriculture serves to sustain the reputation of its progenitor upon up-to-date methods, and earn the debt of gratitude that cultivators are ready to pay to those who have helped towards their advancement.

* A list of these writers will be found in the Bibliography at end of book.

In close association with these enlightened societies, many noblemen, and even the monarch of England, became practical agriculturists, and everyone knows the great personal interest our King takes in the industry; indeed, it is safe to say that no model farms in history compare with Windsor, and, that for knowledge of the national importance of stock-breeding, King Edward VII. excels all his predecessors. Other teachers of agriculture or plant improvers of eminence during the past century may be mentioned in the names of Professor Buckman, Dr. Carruthers, James Carter, Archibald Findlay, Dr. Fream, Sir Brandreth Gibbs, Sir Henry Gilbert, Sir John Bennett Lawes, Peter Lawson, Professor MacAlpine, Professor McConnell, John Chalmers Morton, Miss Eleanor Ormerod, Professor Percival, George Sinclair, Dr. Somerville, Martin John Sutton, Professor Wallace, Sir Charles Whitehead, Professor Wilson, Professor Patrick Wright, Professor Wrightson—these are a few—together with the many colleges and institutions for learning the science in practice, now established in various parts of the kingdom.

In biographical notices the most proper circumstances are selection, compass, and arrangement. Much attention is due to the period when the author lived, and a fair allowance should be made, and a just proportion observed, of the ease and abundance with which the materials are formed as the times approach nearer our own.

I have added at the end an alphabetical list of the authors, so that the publications of any one of them can be readily noted. This list comprehends every British writer of whom any notice can be found from the most careful researches. Necessity, compelled frequent references to former lists, and in this connection I would especially mention the following publications: Weston's "Authors of Husbandry," Johnson's "History of Gardening," Loudon's "Encyclopædia of Agriculture," Miss Amherst's "History of Gardening," Miller's "Gardeners' Dictionary," Felton's "Portraits of Authors," Donaldson's "Agricultural Writers," and the "Dictionary of National Biography."

My reason for compiling this volume is mainly the fact that these old writers have never been given the justice they deserve in the story of the progress of Agriculture in Great Britain; and, as I possess most of their original works, I have been able to gather my information largely from their own pages, and produce the result between two covers. Beyond adding that my ancestors have been wedded to the land for many generations in Scotland, and that I also have been interested in both practical and theoretical agriculture and horticulture all my life, I claim no special knowledge on the subject.

DONALD McDONALD.

Bexley Heath, Kent, January 1st, 1908.



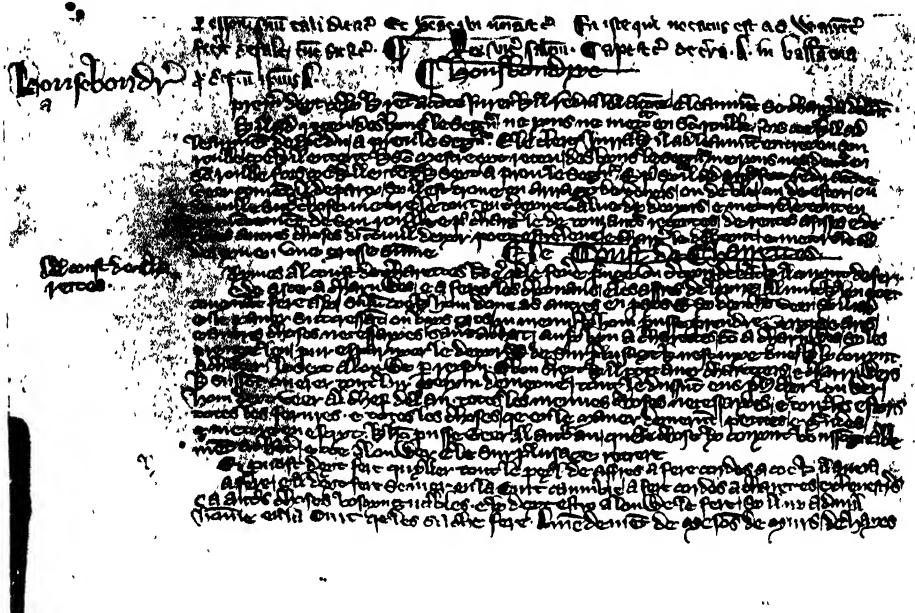
Photograph of part of the MS. of Sir Walter of Henley's "Hosebondrie," from the original in the University Library, Cambridge.

(Ms. 13, about 13th century. Ee. i., l. f. 251. Edward I.)

OLD-TIME AGRICULTURAL WRITERS.



THE oldest documents that have been handed down are mostly compilations originally made by educated monks, who had the opportunity afforded them of studying abroad the writings of the great Greek and Roman scholars: Hesiod, Cato, Varro, Virgil, Columella, Pliny, and last of all Palladius,* who seems in his fourteen books to have taken the cream of the information from his forebears.



Photograph of a portion of the anonymously written "Husbandry," from the original MS. in the University Library, Cambridge. (Hh. III. 11, f. 166, 14th century.)

THE FOUR TREATISES which served such excellent purposes in England, from the twelfth to the fourteenth centuries, may be described as follows:—

SIR WALTER OF HENLEY'S† TREATISE ON HUSBANDRY.

A survey of the management of men and animals.

(See pages 6 and 11.)

ANON HUSBANDRY.

Concerned with the estate accounts. (See illustration above.)

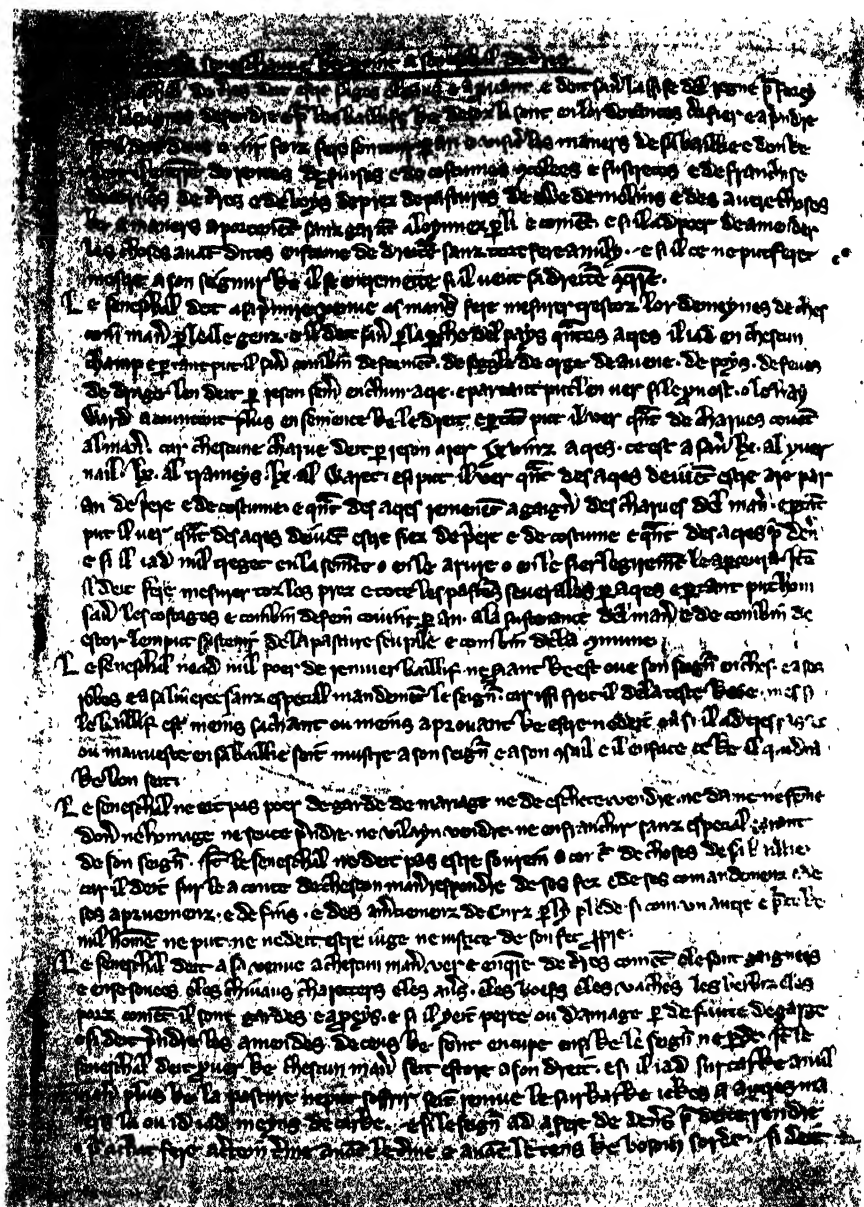
* A Roman writer about A.D. 400.

† The Latin word "Dominus," translated as Sir or Syr, was often used in early days prefixed to the name of monks and friars.

SENESCALCIA.

Deals with the division of labour. (See below.)

The office of seneschal was similar to that of an agent or factor.



Photograph of a portion of the Senescalcia MS. From the original MS. in the University Library, Cambridge.

(Mm. 1 27, f. 133. Early 14th century.)

BISHOP GROSSETESTE'S RULES.

Deals with the production and consumption of crops and management of the household. (See page 11.)

Copies of these treatises are found, in more or less mutilated condition from the effect of constant usage, in several of the University, Museum, and Cathedral libraries. They are all in Anglicised Norman French, and vary somewhat in the text, which is more or less mangled according to the fancies of the transcriber, many of them continuing to detail the

An Account

kept, and be good two times in a yeare, but that happeneth not every yeare: neither can every one of them give profits, but onely according as they shall be well kept, and where they profite, either more or lesse.

This husbandrie made a Knight, Sir Walter of Henley, who after rendered himself into the order of the Friers-preachers, & did teach unto the people, how they ought to live wisely and honestly of their goods, and not to waste too much before hand, lest they should want after.

The father saith in his olde age, and sayde to his sonne, Faire sonne, live wisely, according to God, and after the lawe. TowARDS God thinke often of the passion, and of the death that Jesus Christ suffered for us, and love him above all things, and feare him, & kepe his commandements. As touching the world, thinke yes on the whole of fortune, how men have no riches, and how they are on the top of the whale, being

for Husbandrie.

by mischance they doe fall into poverty, and more into afflictions: therefore I pray you to order your life according as your lands are worth, and do extend by the yeare, and no higher: If you can improve your lands to gaine, either by sowing or by other purveyance more then the ordinarie revenue, keepe the surplus in store: for if cozne faile, store byeth, or burning happeneth to come, or any other mischance, then the same that you have in store will be profitable to you. If you do spend by the yeare the worth of your lands, & any losse in the yeare or mischance happen to come, you have no recourse to your store, and let the store make no waste, nor destroy his goods, as some men do, as those merchants which do by for twentie shillings, and do sell for ten, that man is neither called nor approved wise, that can deliver himselfe out of losse and death if not. You may see some men which have landes and revenues, and can not tell howe to live: wherefore I will tell it you, because they live without order, or any foresight, or provision afore hande.

C 4

and

Facsimile reproduction of pages in Bellot's "Booke of Thrift," referred to on page 11.

marvellous results which deceived the credulous for many centuries. I am enabled to reproduce some portions of the originals in the University Library at Cambridge. It is interesting to know that these documents have been translated, and reproduced in type in a work compiled by Elizabeth Lamond,* and as there stated, "They represent a genuine literary effort about agriculture in a thoroughly English spirit."

* Royal Historical Society. London, Longmans, 1890.



Frontispiece to Robert Grosseteste's "Boke of Husbandry."

(See opposite page.)

SIR WALTER OF HENLEY.

1200-1283 (*about*).

AN educated man, who appears to have served the office of bailiff, or perhaps monk in charge, at one of the manors connected with Canterbury Cathedral. His treatise gives a fairly complete picture of the system of estate management at this early age. For all we know, he may have had a hand in the compilation of the second and third of the treatises I have mentioned, as their authorship up to the present is by no means settled. James Bellot* in his "Booke of Thrift" reproduces Walter of Henley's "Huſbandry" and states: "This husbandrie made a Knight, Sir Walter of Henley who after rendered himself into the order of the Friars-preachers, and did teach unto the people how they ought to live wisely and honestly of their goods and not to waste too much before hand, lest they should want after." I reproduce two pages from this interesting little brochure. (See page 9.) This treatise has also been reproduced by the Royal Historical Society, as stated on page 9.



ROBERT GROSSETESTE.

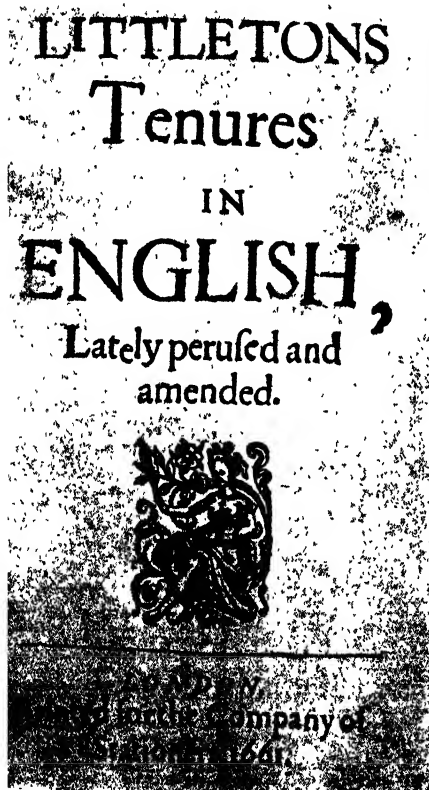
1175-1253.

So variously has this name been spelt that it is by no means certain which is correct. He was Bishop of Lincoln, and his set of Rules upon Estate Management are believed to have been prepared for a Dowager Countess of Lincoln for use on her estates. He studied at the University in Paris, and his treatise was copied and used for quite a couple of centuries after his death. He was a voluminous writer upon a variety of subjects, and copies of his MS. are found in the British, Bodleian, and Sloane Museums, and his Rules have been reproduced in modern English in the same work by Elizabeth Lamond mentioned on page 9.

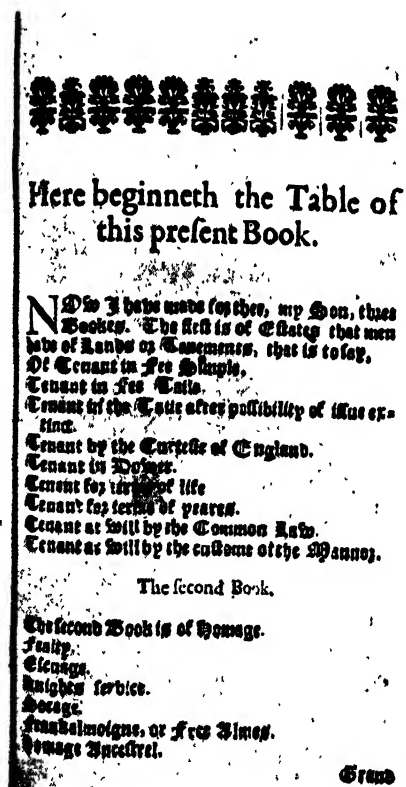
The old catalogue of the Peterborough Library ascribes to the Bishop "Liber qui vocatur Housbondrie," or "A Treatise of Husbandry, which Mayster Groshede, some time Bishop of Lincoln, made and translated out of French into English." It has been supposed that the bishop only translated it from French; and, otherwise, that he first wrote it in French and then rendered it into English. Copies are also extant translated into Latin. Among Bishop Moore's works, in the public library at Cambridge, is a 4to "Boke of Husbandry." Under this title, on a scroll, is the cut of

* "The Booke of Thrift, containing a perfite order and right methode to profite lands. Englished and set out by J. B. Gentleman of Caen in France." London, printed by John Wolfe, 1589.

a person standing in a wood or park, giving orders to a woodman who is felling a tree. (See reproduction on page 10). It contains eighteen leaves. "Here begynneth a Treatise of Husbandry, which Mayster Groshede, sometyne Byshop of Lyncoln, made and translated out of Frenshe into Englyshe, which techeth all manner of men to governe theyr lands, tenements, and demenes ordinatly, as by the chapytres evidently is shewed." It concludes with, "Here endeth the buke of husbandry, and of plantynge and graffynge trees and vynes." No date or printer is mentioned. A very full account of the life of this important man will be found in the "Dictionary of National Biography." See also "The Life and Times of Robert Grosseteste, Bishop of Lincoln," by George G Perry, M.A. London: Society for Promoting Christian Knowledge. 1871. 304 pages, 8vo.



Title page.



First page of Text.

Many editions appeared between 1480 and 1845.

SIR THOMAS LITTLETON.

1402-1481.

JUDGE LITTLETON was the author of a studious book on tenures which has up to the present day been justly celebrated as the principal pillar upon which the superstructure of the law of real property in the kingdom is supported. Becoming eminent in his profession, he was appointed in 1466 one of the judges of the Court of Common Pleas. He died in 1481, and was buried in Worcester Cathedral. The head of the family bears to-day the honoured title of Lord Lyttleton, and several of its members are learned in the arts of peace and war.

Two pages are reproduced from the copy of a late edition in my collection. That illustrating a portion of the text gives a good idea of its contents. (See opposite page.)



JOHN FITZHERBERT.

1460-1531 (*about*).

WITH the invention of the art of printing greater attention began to be paid to rural affairs, and the first English treatise on practical husbandry appeared in 1523, during the reign of King Henry VIII. It was written by John Fitzherbert, twelfth lord of the manor of Norbury, in Derbyshire, from 1483 to 1531, and elder brother of Sir Anthony Fitzherbert, Judge of the Common Pleas.

Although it is known for a certain fact that Sir Anthony was the author of one or more books on legal matters, all the early biographers have brought him down to us as the writer of a book on husbandry and one on surveying. It has been proved during the past ten years from thorough investigations made by Sir Ernest Clarke, M.A., F.S.A., late Secretary of the Royal Agricultural Society of England, and late Lecturer on the History of Agriculture at Cambridge University, that these books were written by John Fitzherbert. On February 19th, 1896, Sir Ernest Clarke read before a meeting of the Bibliographical Society a paper in connection with this subject, giving the results of his own researches. In the *English Historical Review* for April, 1897,* there is an interesting article upon the authorship of these books from the pen of the Rev. Reginald H. C. Fitzherbert, in which it is shown that the first edition of the "Boke of Husbondrye" was

* No. 46, Vol. XII.

produced by Pynson, the King's printer, on July 15th, 1523, as well as the "Boke on Surveying" in the same year.*

The author of this curious and interesting volume who has by many been looked upon as the father of English husbandry, wrote from his own experience of more than forty years, and excepting his Biblical allusions and some vestiges of the superstitions of the Roman writers about the influence of the moon, there is very little in his work that should be omitted—and not a great deal that need be added in so far as regards the culture of corn—in a manual of husbandry adapted to the present time.

It is evident that he was cognisant of the existence of Walter of Henley's precepts, but beyond these the work combines in a condensed form all that was necessary to be practised at that age, and, with a well-stored and well-regulated mind, he gives his experiences on all rural matters, from the preparation of the land to the breeding of stock, and even to the regulations of the domestic arrangements of the farmer's family. It throws considerable light on the state of the farmers in those days, who, with their wives and children, worked hard, and were little raised above the common labourers, except that they were freemen. A yeoman who had land of his own appears to have been a very independent man, but his mode of living was quite plain. He existed on the produce of his land, and generally fed his labourers at his own board. His pastime was hunting.

Fitzherbert's book, from which I am able to give facsimile folios,† attracted great attention at the time, as it ran through eight editions during the following half-century and served as copy for other writers for another century, while its appearance formed a sort of crisis in the history of British agriculture. It may be safely assumed that had the author lived at the present day he would have been considered a great agricultural authority, as many of the rules he has laid down have never been altered.

The Introduction shows us the first rudiments of husbandry, that a farmer ought not only to be skilled in the improvement of his land, by the sowing of corn and seeds, but also ought to understand the breeding and management of cattle.

His own words concerning divers kinds of ploughs in his time are interesting. Following the facsimile page pictured on page 17, he states:—

About Zelcestre, the sharbeame, that in many places is called the ploughe bedde, is fourē or fyve foote longe, and it is brode and thynne. And that is because the lande is very toughe, and wolde foke the ploughe into the erthe, yf the sharbeame were not long, brode and thynne. In Kente they have other maner of plowes, somme goo with wheles, as they do in many other places, and some wyl turne the shelbrede at every lands end, and plowe all one way. In Buckinghamshire are plowes made

* For full description see Dibdin's "Typographical Antiquities," published 1810, Vol. II., pp. 503-5.

† From the 1525 (?) edition printed by P. Treverys. The oldest in British Museum. Others say this edition was printed in 1531.

There begynneth a newe traacte or treatise moode pfecte for all husbāde men and bette frutefull for all other perlonēs to rede newly cōcepte & amended by the auctour with dyuerse other thynges added therunto.



Facsimile of title in the 1523 and 1525 (?) edition of Fitzherbert's "Boke of Husbondrye"

(From the copy in the British Museum.)

This woodcut was first introduced in the "Kalendar of Shepherds."

of another manner and also other maner of plowe yrons, the which we seemeth generally good and likely to serve in many places, and especially if the plough beam and sharbeam were four ynches longer, between the steth and the plowe tayle, that the sheldrede might come more aslope, for those plowes gyve out too sodenly, and therefore they are worse to draw, and for no cause els. In Lecestershyre, Lankeshyre, Yorkeshyre, Lincolne, Norfolke, Cambridgeshyre, and many other countries the plowes be of dyvers makinges. But how so ever they be made, if they be well tempored and go well, they may be the better suffered.

The use of these is to show us in the first place that so long ago as almost 400 years, different forms of ploughs were in use in England. He also recommends the wheels of carts and waggons to be shod with iron, which in his day would cost about 25s. the pair. He prefers oxen to horses for rural labour, but admits that horses are quicker for certain light work. He recommends that young husbandmen should learn to make their yokes, ox bows, stools, and all manner of plough gears. He advises that the wives of farmers perform all manner of work in baking and brewing, winnowing corn, driving and filling the dung carts, and attending the grinding mills when the flour is made.

He next discusses the difference between ploughing with oxen and with horses, and adds:—

In Somersetshyre, Devonshyre, and other partes of the west, the farmers make great advantage of their worn oxen when they have done labour, by feeding them in fresh pastures they bring them to be good meat, and sell them well in the markets. The chief objection made against the flesh of these cattle is that it is of large grain and does not eat so short and tender as that of cattle which have not been used to draw.

As to sowing he says:—

An acre of ground by the statute, that is to say, xvi. fote and an halfe to the perche or pole, four perches to an acre in breadth, and fortye perches to an acre in lengthe, may be metelye well sowed with two London bushelles of pease, the whyche is but two stryckes in other places, and if it be all beanes it will have foure London bushelles fullye, and that is half a quarter.

Is not this very similar to what the farmer does to-day? As to barley he states:—

That there be three maner of barleys, that is to say, sprout barley, longe eare, and bere barley, that somme men call bigge. Sprout barley hath a flat eare, three-quarters of an inch brode, and three inches long. Longe eare is halfe an inch brode, and foure inches and more of length.

Here, then, it is clearly shown that the modern type of flat-eared barley known as Goldthorpe, and the long-eared type which we call Chevalier, was in some form or other known to Fitzherbert; indeed, his measurements would represent an average ear to-day. Of oats, he speaks of red, yellow, black, and rough, the red being best for oatmeal. It may be presumed these latter are what we call sandy oats. Hay was made of the native grasses, stacked into ricks, and cut into trusses.

"In the fourteenth century," says Professor Rogers in his exhaustive work on the "History of Agriculture," Vol. I., "Eighteen acres of grass on the Oxford meadows sold at 9s. To mow and stack would cost

The booke of husbandry. folio .i.

There begynneth the booke of husbandry and fyrst wherby husbaunde mendo lyue.



Phe moost generall lpyngge that husbandes can haue / is by plowynge & sowynge of theyr cornes / & retyngge oꝝ bꝛedyngge of theyr cattell / and not the one withoute the other. Than is the ploughe ymost necessaryest instrument yā husbaunde can occupye / wherfoze it is couenyent to be knownen how a plow shold be made.

Dyuers maners of plowes.

There be plowes of dyuers makynge in dyuers contrees / and lykewyle there be plowes of yven of dyuers facyons. And that is because there be many maner of groundes and soyle. Some whyte clay / some rised clay / som grauell / som chylturne / som sande / some meane erthe / some meddled with marle / and in many places hethe grounde / and one ploughe wpll not serue in al places. wherfoze it is necessary to haue dyuers maner of plowes. In Sommersetshyre aboute sclestre / the sharbeame that in many places is called the ploughe hed / is foure oꝝ fyue fote longe / and it is brode & thyn. And that is bycause the lande is hery tough / & wolde soke the plough into the erthe if the sharbeame were not longe / brode / and thynne. In Kent they haue other maner plowes / some good with wheles / as they do in many other places / and

B.i.

another shilling per acre, and taking the quarter of wheat at 5s. 10½*d.*, the average for 140 years, the value of an acre of grass on a site of great natural fertility and in close proximity to a town would be about equal to 10½ bushels of wheat." Even in those days there were certain burdens attached to the occupation of land. How would present-day farmers have existed in such times?

The common names given by Fitzherbert to weeds are interesting, as many of them stand just the same to-day. He says :

In the later ende of Maye is tyme to wede thy corne. There be divers maner of wedes, as thistles, kedlokes (his name for charlock), dockes, cocle, drake, darnolde, gouldes and dog fenell. The thystle is an yll wede, and there be other wedes, as dee nettylles, dodder [it seems remarkable he should have known this vile parasite], and suche other that doo moche harme.

Draining land is a subject he has a good deal to say about, and describes a system practised in the marshes in Essex, near Stratford, as to the treating of water meadows for making hay. Chapters on how to set on sheepfolds, how to mow grass and make hay, to make an ewe love her lamb, several chapters on cattle, horses, and other stock, not forgetting the properties of a woman, various diseases with remedies, lopping, cropping, and grafting fruit trees. A curious lesson made in Englishe verses to teache a gentylman's servant "to say at every time, when he taketh his horse for his remembrance, that he shall not forget his gere in his inne behynde hym."

Purse, dagger, cloke, nyghtcap, kerchief, shoying horn, boget, and shoes. Spere, mole, hode, halter, sadelclothe, spores, hatte, with thy horse combe. Bowe, arrows, sworde, bukler, horne, leishe, gloves, string, and thy bracer. Penne, paper, inke, parchemente, reedwaxe, pommies, bokes, thou remember, Penknyfe, combe, thymble, nedle, threde, poynte, leste that thy gurthe breake. Bodkyn, knyfe, lyngel, give thy horse meate, se he be showed well. Make mery, synge an thou can, take hede to thy gere, that thou lose none.

His description of heathlands is interesting, and I gather that the value of dung was as greatly realised by farmers in his day as it is now. He appears to have originated the present custom of granting leases on condition that but one crop of corn shall be raised in three years upon the same piece of ground. He also has a deal to say on the moral and religious conduct of the husbandman. His advice to a "yonge gentylman that standeth to thryve" is to get a copy of his book and read it from beginning to end, and according to the season of the year dictate that particular chapter to his servants. He is to be up early, go out in his fie s, and note down for future reference anything he observes likely to be helpful. This Fitzherbert says he did "for xii. yeres or more."

After these ancient references comes the first book in the English language which treats expressly on this subject, written by John Fitzherbert, entitled "*The Boke of Surveyinge.*" Here begynneth a

of husbandry.

Fo. xix.

¶ To seuer pees/ beanes/ and fytches,

W^han thou hast thresshed thy pease & beanes/ after they be wyndowed/ & oz thou shalt sow them oz sell them let them be well reede with syues/ & seuered in thre partes the great fro the smal/ & thou shalt get in euery quarter a Lōdon bushel oz there about. For the small cozne lyeth in the holow & wyde places of þ great beanes/ & yet shall the greate beanes be solde as dere as and they were all to gyder oz beter/ as a man may proue by a samplier ensample. Let a man bye. C. herynge. ii. herynge. a peny/ & another. C. herynge. thre for a peny/ & let hym selle these. CC. herynge. a gayne. v. herynge. for. ii. d. nowe hathe he loste. iiii. d. For. C. herynge. two for. j. d. cost. v. s. and. C. herynge. ii. for a peny cost. iiii. s. and. iiii. d. the whiche is. viii. s. and. iiii. d. and whan he selleth. v. herynge. for. ii. d. xx. herynge. cometh but to. viii. d. and there is but. xj. scoze herynge/ & that is but. xij. grotes. and. xij. grotes. and that cometh but to. viii. s. and so he hathe loste iiii. d. & it is bycause there be nat so many bargeynes/ for in the byenge of these. CC. herynge. there be fyue scoze bargeynes/ and in the sellynge of the same there be but. xlviii. bargaynes/ and so is there is loste ten herynge/ the which wolde haue ben two bargaynes mo/ and than it had ben euen and mete. And therfore he that byeth grosse sale/ and retayleth must nedes be a wyunner/ and so shalt thou be a loser yf thou sell thy pease/ beanes/ & fytches to gyder/ for than thou sellest grosse sale. And yf thou seuer them in thre partes than thou dost retayle/ wherby thou shalt wyne.

F. iiii.

ryght frutifull mater: and hath to name the boke of surueyeng and improuemetē. In the prologue the author asks:

Howe and by what maner doo all these great estates and noblemen and women live, and mantayne their honour and degree? And in my opynion, their honour and degree is upholden and mayntayned, by reason of their rentes, issues, reuenewes, and profyttes, that comes to their maners lordshyps landes and tenements to themym belonginge. Then it is necessary to be knowen, howe all these maners, lordeshyps, landes and tenements should be extended, surveyed, butted, bounded, and valued in every parte.

He further states that "for the grounde of this treatyse I do take an olde statute named Extenta manerii," referred to above, and this fact accounts for the many legal references contained therein. This was the document in which Fitzherbert defines the meaning of a common and its uses. He quotes in Latin many forms under which lands are held. Chapter XIX. is headed, "What a Surveyur shuld do," and it is so interesting that I quote it *in extenso*:

Nowe this statute is brefely declared it wolde be understand, how a lordshyp or a manor shuld be surveyed and viewed, butted and bounded on every parte, that it may be knowen for ever, whose every parcel thereof was, at the makying of this boke, and it may serve as well to save the inheritance of the lordes, as of every freholder by charter, copyholder, and customary holder, and to knowe every man's land, as it lyeth to his house, one from another, so that it may be knowen an hundred years after, and forever, what maner of landes and how many acres every man had to his house at that time, and where they ly. The name of a surveiour is a French name, and is as moche to saye in Englysshe as an overseer. Then it wolde be knowen, how a surveyour shuld oversee or survey a town or a lordshyp. As if the City of London shulde be surveyed, the surveyour maye nat stande at Hygate, nor at Shoter's hill, nor yet at the Blackeheth, nor suche other places, and overloke the city on every syde. For if he do, he shall nat see the goodly streets, the fayre buyldyngs, nor the great substance of rychesse conteyned in them, for then he may be called a disceyner, and not a surveyour: and in likewise yf a man shall view a close, or a pasture, he may not loke over the hedge, and go his way, but he must outherride, or goo ouer, and see every parcell thereof, and to know how many acres it conteyneth, and how moche thereof was medowe grounde, heythe, lynge, or such other, and what an acre of medowe grounde is worthe, and what an acre of pasture, and what an acre of the wod grounde of bushe, and such other be worthe. And what maner of cattell it is best for. And how many cattell it will grasse or finde by the yere, and what a beastes grasse is worthe by the yere in suche a pasture or els he cannat set a true value what it is worthe. And therefore a surveyour must be diligent and laborious, and nat slouthful and rechelesse, for and he be, he is nat worthy to have his fee or wages, and maye fortune to make an unperfite boke. And if he so do, it is to his shame and rebuke, and great jeopardye to his soule to make a false precydent, wherefore it is convenient to remember the saying of the wise philosopher Adhibe curam, that is to say, take heed to thy charge, and so if he shulde view a citie or a towne he must begyn at a certayne place, as yf he were at the drawe bridge of London bridge on the east syde, and there to make his tytelynge where he beginneth, and to show who is lorde of his house next into the sayd bridge, and who is tenant. And if he be a freholder, what cheife rents he payeth to the lorde, customes, or other services. And if he be no freholder, than the rent needeth nat to be spoken of but at his pleasure, for it may ryse and fal. And how many fote in brede, and how many in length. Then to the

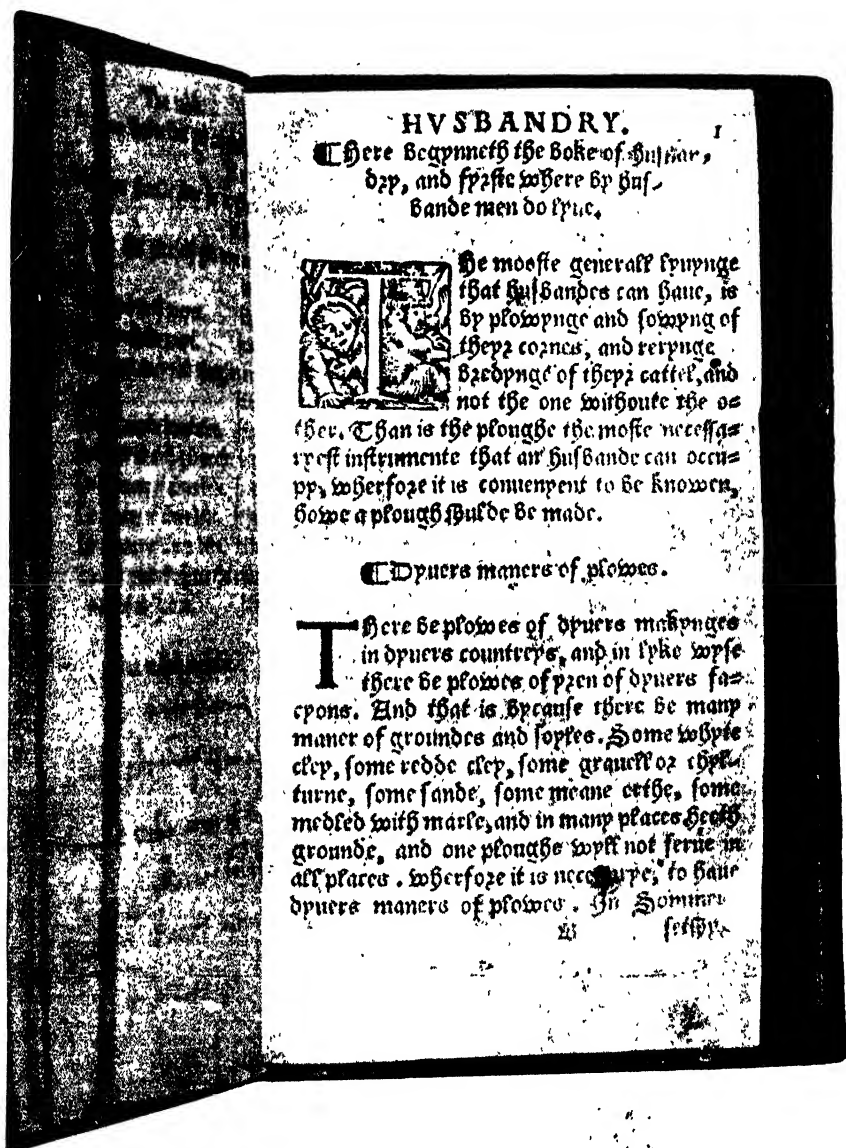
of husbandrye

Folio. I.

that a fote longe in þe begynnyng & stonde as moche
aboue the harow as beneath. And as they were oꝝ
bryke they dygne them downe lower & they wolde be
made longe before oꝝ they be occupied that they may
be dyge/foz than they shall endure a last moche better
& stycke the faster. The hoxles that shall drame these
harowes must be well kepte & shodde oꝝ els they wyl
sone be tyed/and soze bete/that they may nat dram.
They must have bombers oꝝ rollers/holdes withed
about theꝝ neckes/whiche to dra to by/and a swyng-
letre to holde the trelles abrode/and a togeth to be
betwene þe swyngletre & the harow. And yf the harlep
grounde wyl nat becke with harowes but be clottey
it wolde be beaten with malles & not streight down
foz than they bete the corne into the erthe. And yf they
bete the clot on the lyne it mayll the better bryke. And þe
clot wyl lye lyght & the corne may lyghtly come vp.
And they shal to take theꝝ barley grass after a spoure
of rayne to make the grounde even to mowe.

¶ To salowe.

Now the husbandes have sowne theꝝ pease
brakes/ barley & otes/and harowed the/it is
the best tyme to salowe in the latter ende of Marche &
Apryll/foz wheate/rye & barley. And let the husband
do the best he can to plowe a brode fozow and a depe/
so that he turbe the clene and lay it flat/that it rere nat
on the edge/the whiche shall destroye all the thyssyls
and medes.foz the deper & the broder that be gothe/
the more newe molde/and the greater clottes shall
D. it



Facsimile of first page of John Fitzherbert's "Boke of Husbandry," 1534 edition.

second howse on the same east syde in lyke maner, and so to peruse from house to house tyll he come to St. Magnus Chürche. And then return agayne to the sayd drawe bridge on the west syde, and there begin at the house next to the sayd bridge, and so to peruse from house to house, tyll he come to the corner next Temme's Street, and then he may choose whether he wyll followe the south side of the sayd Temme's street, westwarde and eastwarde tyll he have perused the whole parische. And if there be any maner of gardens, entrees, or aleys, or other dwellyngne places within forthe, that may not be overskipped, forgotten, nor left out, but taken by the way. How

moche every garden is, how longe every aley and entre is, and how many dwelling placis be therein, and whose they be, and how many cellars or tavernes there be and howe many footes every of them be in length and brede. And so to go from parishe to parishe, tyll he have viewed the citie and every strete and lane wolde be remembered what length and brede they be of. And also of every church and churche yard, and other voyd places, the which would aske a great leysar, but yet it is possible to be done.

Fitzherbert's books on husbandry and surveying were reprinted in 1767 by Dr. Vansittart of All Souls College, Oxford, with the following remarks attached:

These treatises are reprinted partly on account of their usefulness and partly for the sake of their antiquity. They have become exceedingly scarce, have been much sought after, and purchased sometimes at a high price. Upon the whole, they all very well deserved to be rescued from oblivion.



THOMAS TUSSER.

1524—1580 (*about*).

THIRTY-FOUR years after the publication of the first English work on practical agriculture, there appeared in 1557 "A Hundreth Good Pointes of Husbandrie," by Thomas Tusser. This celebrated book must be regarded more as a series of good farming and domestic directions and axioms, than as a regular treatise upon agriculture. His whole life appears to have been full of adventure, for he had all the restlessness of genius with the unsettled habits too commonly confirmed by continued change of occupation.

He was born in the year 1524 at Rivenhall, a village on the high road between the towns of Witham and Kelvedon, in Essex, of a family allied by marriage to the high ranks of society. The earliest records of the family is in the Herald's College, where it states that "Richard Tusser was of Shyrborne in the county of Dorset, gentylman," and that he had a son, William Tusser, Ryvenhall, in the counte of Essex, Esquier. He married the sister of Sir Clement Smyth, of Tofts of Little Baddow, in the same county, and who also was proprietor of Hoo Hall in Rivenhall.

Sir Clement himself married Dorothy, daughter of Edward Seymour, Duke of Somerset. The actual house in which Thomas Tusser resided was called Lanhams, and, I believe, is standing to-day. In whatever capacity he at various times lived he acted with ability, yet never so as to benefit his own fortune. That he excelled as a chorister, to which he was originally educated, though, strangely, against his inclination, is certain, for none but those with more than ordinary vocal powers are admitted into the royal choir at St. Paul's. It seems he also went to

Eton, and from there to Trinity Hall, Cambridge, as he relates in his verses :

To London hence, to Cambridge thence,
With thanks to thee, O Trinity,
That to thy hall, so passing all,
I got at last.

He left the University through ill health, and making his way to London, he was recommended to the Lord William Paget, who seems to have been a great friend to him. He is next heard of as a farmer at Braham Hall in Suffolk, where he was evidently a close observer of the times and practices then deemed best for successful farming. Still he must have begun almost as soon with his pen as with his plough. He could have only remained here for a few years, as he is found ten years afterwards living in Ipswich, and farming in Norfolk, probably as steward to Sir Richard Southwell, who he mentions as having died suddenly. This gentleman I find was also a relation of Tusser's great supporter Lord Paget, then he adds : "To Norwich fine for me and mine," where the Dean enabled him to earn a livelihood as a schoolmaster. In 1566 he left Norwich. He next appears as residing at the parsonage house at Fairstead, in Essex, where a son and daughter were born in 1568 and 1570, as testified by the register of the parish. His restlessness, however, stuck to him, and he tells us :

Then by and bye away went I,
To London straight and hope and wait,
For better chance.

His residence in London was at Cripplegate, and the baptism of his son Edmund is found in the register, dated March, 1572, and we next find him fleeing from the Plague. It was at Trinity College that he appears to have become a servitor on May 5th, 1573, and resided at Chesterton, owning certain land there, for in his will he bequeaths various properties to his four children.

He returned, however, to London about the end of 1579, and died in the summer of the next year, being buried at St. Mildred's Church, in the Poultry, and the following epitaph, according to Stow,* recorded his memory. It is perfectly in character with the man and his writings, and if conjecture may be allowed, was penned by himself :

Here Thomas Tusser, clad in earth doth lie,
Who sometimes made the points of husbandry.
By him there learn thou may'st. Here learn we must,
When all is done we sleep and turn to dust.
And yet through Christ to Heaven we hope to go,
Who reads his book shall find his faith was so.

The church of St. Mildred was destroyed by the great fire, and with it perished Tusser's monument. His will was proved in the Prerogative

* "Survey of London."

Court of the Archbishop of Canterbury on August, 8th, 1580, by his son Thomas Tusser.

The precepts of Tusser are excellent, and show very much cool, collected sense, and at the early age in which he lived it was a grand conception of his mind to write upon agriculture in poetry. As a farmer

A hundreth good pointes of husbandry.

(.)

A hundreth good pointes, of good husbandry;
maintaineth good household, with huswifery.
Housekeeping and husbandry, if it be good:
must loue one another, as coulmes in blood.
The wife to, must husband as well as the man;
or farewell thy husbandry, doe what thou can.

Facsimile of the title page of Tusser's "A Hundreth Good Pointes of Husbandry." Imprinted at London in Flete Street, within Temple barre, at the sygne of the Hand and Stave, by Richard Tottel, the third day of February, An. 1557.

it is evident he possessed a correct knowledge, as his books testify, and as an author he was far above mediocrity.

Tusser dedicated this first book, which was the germ of his future and more elaborate work, to his master, the Hon. Lord William Paget, Lord Privie Seale, and his subsequent book, entitled "Five Hundred Pointes of Good Husbandrie," to "the Right Honourable and very specially good lord and master the Lord Thomas Paget, of Beaudesert, sonne and heire to his late father." Newly corrected and amplified editions appeared during the next century, and a reprint of the first book is found in Hazelwood's "British Biographer." It was also reproduced in 1710 in monthly parts, entitled "Tusser Redivivus." In a pamphlet published in Dublin in 1723, entitled "Some Considerations for the Promoting of Agriculture," the then Lord Molesworth suggests :

As to agriculture I should humbly propose that a school of husbandry were erected in every county, wherein an expert master of the methods of agriculture should teach at a fixed yearly salary, and that Tusser's "Old Book of Husbandry" should be taught to the boys, to read, to copy; and to get it by heart, to which end it might be reprinted and distributed.

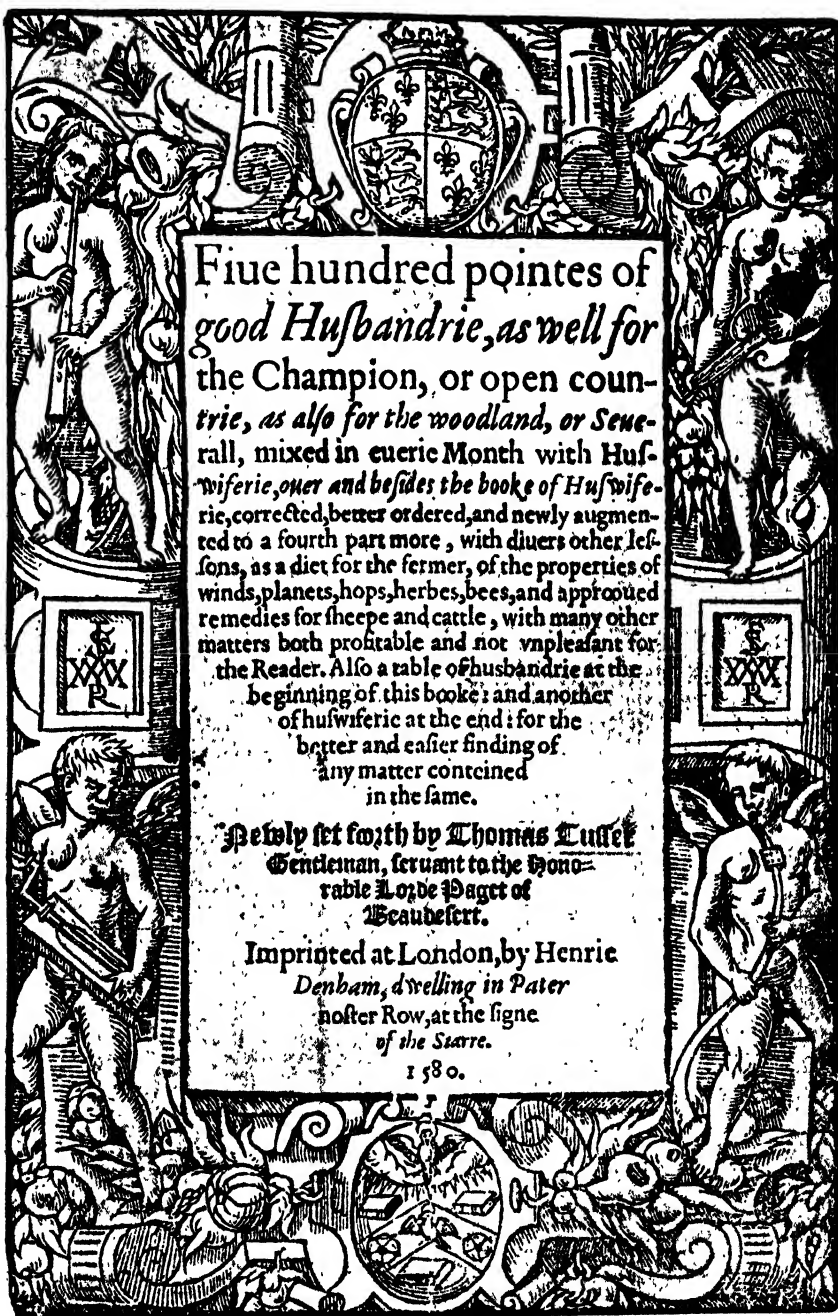
In 1812 the celebrated Dr. Mavor, an educational authority, reproduced a copy with many notes and additions. Then in 1846 there were issued from Mr. Clarke's private printing press at Great Totham, Essex, a very limited number of copies containing the last will and testament of Thomas Tusser, to which is added his metrical autobiography. The latest reproduction I have been able to trace was that published by the English Dialect Society in 1878.

Such are the works of Tusser, writings which were long the handbook of the English country gentlemen. That they were popular is evidenced by the rapid succession of copious editions, and that they were read and studied is proved by the difficulty it is to find a perfect copy. He was, therefore, deserving of the gratitude of the farmer of his day, for his labours tended to improve, to refine, and to elevate the profession he celebrated in his verses.

The price when first published was a groat, now booksellers ask as much as twelve guineas for sound copies of the early editions.

The style in which Tusser writes his books is plain, but sometimes halting, at the same time it is a metric easily understood and remembered, as verse is well adapted to impress upon the memory the mass of useful truths and rural directions their pages contain. He begins his monthly husbandry with the month of September, for that was then as now in England, when farming lands in most counties are commonly entered upon by the purchaser or tenants. His instructions include the Sowing of Rye, the Mending of Marsh Walls, and the Gelding of Rams.

In furtherance of his object, that of giving some very minute directions to the incoming tenant, he even gives a catalogue of farming



Facsimile of the title page of the fourth edition of Tusser's "Five Hundred Pointes of Good Husbandrie."

implements in verse, in which he manages with much adroitness to include several apparently impracticable names such as :

A hand-barrow, wheelbarrow, shovel, and spade,
A curry comb, wave-comb, and whip for a jade.

It was the approved practice in Tusser's time to "sow timely thy white wheat, sow rye in the dust." They were accustomed also to put rye meal into their wheat flour.

Thick and thin sowing had even then their respective advocates.

Though beans be in sowing but scattered in,
Yet wheat, rye and peasen I love not too thin,
Sow barley and dredge with a plentiful hand,
Lest weed 'stead of seed over growth thy land.

It is evident that in his days the farmers were not able to grow their grain on a variety of soils such as we now find it. Thus he speaks of the difficulty they found in producing barley in the parish of Brantham, in Essex: and again he tells us what will surprise a present-day Suffolk farmer;

In Suffolk again, whereas wheat never grew,
Good husbandry used—good wheat land I knew.

The varieties of wheat he mentions are white and red rivet, white and red pollard, Turkey and grey, but of the last he says:

Oats, rye, or else barley and wheat that is grey
Brings land out of comfort, and soon to decay.

He had the wisdom to perceive the advantages of shed-feeding live stock:

The housing of cattle, while winter doth hold,
It is good for all such as are feeble and old.
It saveth much compass and many a sleep,
And spareth the pasture for walk of thy sheep.

For faint cattle he recommends the use of bay salt, and in his February husbandry gives some directions for the management of their dung, which betrays, however, a deplorable want of knowledge in its economy. In another place, however, he recommends the farmers to use the mud from the ditches and ponds as a dressing for their land. They harvested their corn, it seems, much after the same manner as at the present day. They reaped their wheat, carried the grain, and gleaned the stubbles as we do now. They let out the harvest work either by the acre, or by the day, and he seems to have preferred the latter.

His directions to the farmer with regard to the treatment of his men, and his warm hopes for the farmer's success, exhibit the excellent benevolent spirit with which he was actuated.

Tusser's book is also interesting from the information it gives us of the habits of the farmers of more than three centuries ago. It is

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The Authors Life.

If courtly change so breaketh still,
That country life must sorbe the turne :
What profit they in striving fill,
Against the prick to seeme to spurne :

What gaine I though I doe repent,
My crutches all are broke and gone :
My wonted friends are carelesse bent,
They feare no chance I chance upon.

How if I take my worth my lot,
What fatall chance both foze me to,
If ye be friends upbraid me not,
But use a friend as friends should doe.

If Court with Care
Must be content,
What ease to heart,
Though mind repent.

As need doth make,
Old age to trot :
So must I take
In worth my lot.

Behold the horse,
Must frudge for pelfe,
And yet of foze,
Content it selfe.

The Authors Life.

Now gentle friend if thou be kind,
Disdaine thou not a' though the lot
Will not nith me no better be,
then doth appere :

A 2 let it gile me that this I lye,
But rather gelle f. 2 q'letnesse,
As other doe, so doe I to,
consent me here.

2 By leafe and love of God above,
I mind to shew in verses few
How through the breezes my youthfull peeres
have runne their race :

And further say, w'p so I say,
And mind to lye as Bee in hibe,
Full bent to spend my life to an end,
in this same place.

Horne at Ri-
ven-hall in
Essex.

3 It came to passe that borne I was,
Of lineage good, of gentle blood,
In Essex-layr, in village fayr,
that Riven-hall nigh :
which village lye by Bank-tree side,
Where I end did I mine infancy,

There

evident that they were able to obtain fish, for in his directions for the daily diet he mentions for Lent, herrings and salt fish; at Easter, veal and bacon; at Martinmas, beef; before the feast of St. John, mackerel; fresh herrings at Michaelmas; sprats and spurlings at Hallowtide, while for Christmas fare they seem to have enjoyed many of the modern standing dishes.

Good bread and good drink, a good fire in the hall,
Brawn pudding and souse, and good mustard withal;
Beef, mutton, and pork, shred pies of the best,
Pig, veal, goose, and capon, and turkey well drest,
Where fish is scant and fruit of trees,
Supply that want with butter and cheese.

He never seems to have forgotten on any occasion to recommend to the landowner the payment of his just dues, even the question of tithes, so obnoxious to the farmer, was not overlooked by him.

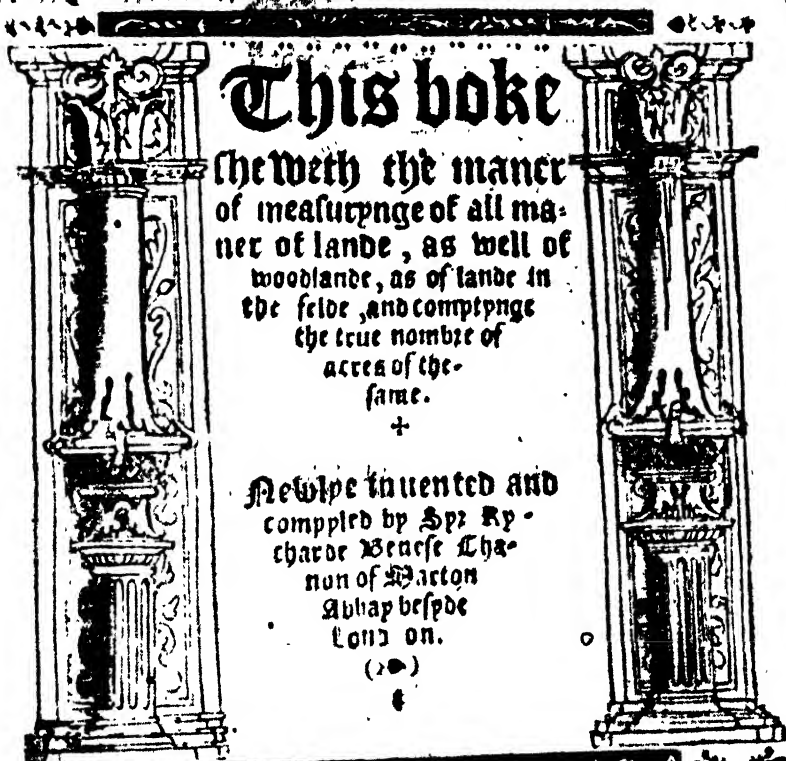
He gives the corn harvest, equally divided into ten parts :

1. One part cast forth, for rent due out of hand ;
2. One other part, for seed to sow thy land ;
3. Another part, leave parson for his tithe ;
4. Another part, for harvest, sickle and scythe ;
5. One part for plough-wright, cart-wright, knacker and smith ;
6. One part to uphold thy teams that draw therewith ;
7. One part for servant, and workman's wages lay ;
8. One part likewise for fill-belly day by day ;
9. One part thy wife for needful things doth crave ;
10. Thyself and child the last one part would have .

He adds :

Who minds to quote
Upon this note
May easily find enough ;
What charge and pain
To little gain
Doth follow toiling plough,

The poem of "Housewifry united to the comforts of Husbandry" is written in rather a more lively style, and has an epistle dedicatory to the right honorable and my specially good lady and mistress the Lady Paget. This part contains an abundance of directions, in his usual style of versification, for the conduct of household duties. The mistress of the house then made her own candles and also carved for the farm servants at breakfast. Lord Molesworth thought that "The Points of Huswifry" should be reprinted and a copy kept in every farmhouse. It might have served its purpose in those days, but would be of little use nowadays.



SYR RICHARDE BENESE.

1500—1546.

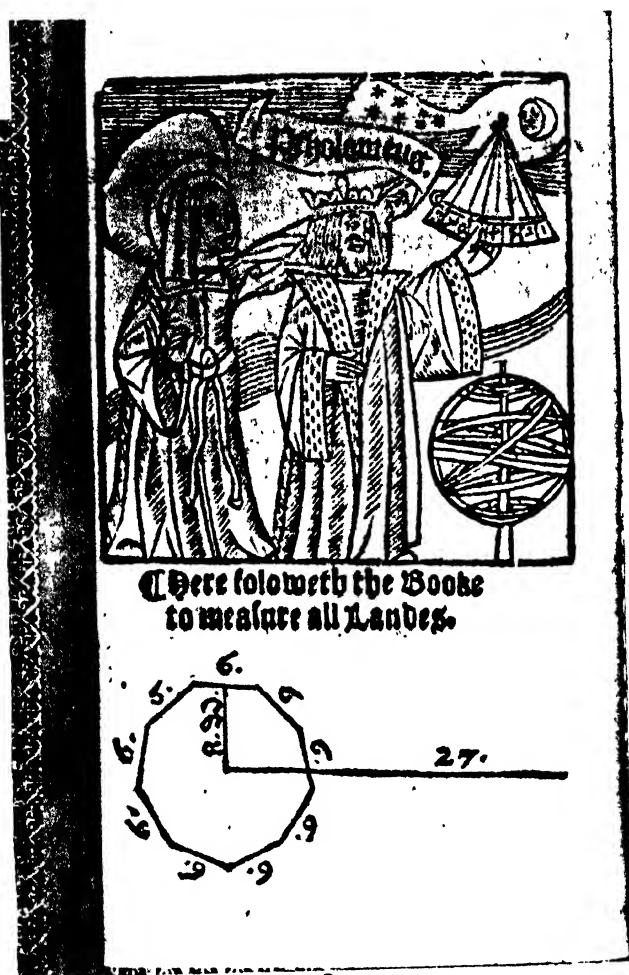
SURVEYING as it is known to-day may be defined as the art of determining the boundaries or superficial contents of land and buildings by a form of practical mathematics. In olden times the office of a surveyor extended much beyond this, his occupation being similar to that now called in England an agent, and in Scotland a factor. He was, indeed, the medium between the landlord and tenant.

From the earliest times Biblical references are made to the measurement of land, whilst surveying was adopted in Egypt by King Ptolemy. It is on record that when the river Nilus (Nile) overflowed its banks the marks and bounds of all grounds were washed away, whereupon they decided to plot out every man's land, so that when the waters receded each could find his own plot. It was absolutely necessary in the days of the great Roman Empire that surveyors should be scholars, have a thorough knowledge of the Latin tongue, and a good memory, and in this connection Pliny reporteth of Mithridates that having under his government twenty-two kingdoms or nations, he could speak all their languages, and understand any tongue without an interpreter. It is also stated that some references are found in the records of the Tower of London even before the Conquest, and since this period the book called "Doomsday" lying in the Exchequer will confirm sufficiently that surveying is no new invention. Besides, the same art has been in sum and substance established by an important statute drawn up in the fourth year of the reign of King Edward I., entitled *Extenta Manerii*, wherein is contained many and divers chapters and articles the which, at that time, was but instructions how and what they should do that were commissioners or surveyors.

What appears to be the next book published on the subject of laying out and measuring land is that compiled by Richard Benese, a canon of the Augustian Priory of Merton (which he surrendered to Henry VIII. in 1538), or, to quote the old-time description, "Canon of Martin Abbey, neere Meecham, Surrey," the first edition of which appeared in the year 1537, and entitled according to the illustration on page 31.

A lengthy preface is by one Thomas Paynell, also a "Chanon of Marton," who, after quoting many of the sayings of the Roman writers, adds :

Considering then this liberal science called geometrye to be in every thing much convenient for the use and common profit of all men, a friend and lover of mine, Syr Richarde Benese, not willing to hide the treasure . . . he hath compiled this ingenious and profitable book for the common profit and use of every man. He hath furthermore to express these intricate and hard points of geometry by figures rules and such open examples that every man "plyinge his mynde" thereunto may without any greate labour attaine unto the perfect knowledge thereof.



Syr Rychard Benese. Illustration following preface in 1562 edition.

The book extends to about 120 pages, and contains chapters of tables for measuring land and timber, pavements, boards, panes of glass, and the manner of dividing off one acre or more of woodlands from many other acres "lyinge together in one peece."

He tenders the following advice on a true ynche (inch) :

The length of an inch after some men's opinions is made by the length of three barlye cornes, the which rule is not at all times true, for the length of the barlye cornes of some tyllage is longer after the fatness or leanness of the land where it was sown upon. Therefore ye shall take the length of an inch most trulye upon an artificer's rule, made of two foote in length after the standard of London.

The last page contains a table showing "The correction of fautes escaped." There are three subsequent editions in the British Museum, dated respectively 1540, 1562, and 1564, from which it may be presumed that it was a popular work. The 1540 edition bears the imprint, as publisher, of Robert Wyer, dwelling in the Duke of Suffolke's Rentes, beside Charing Cross. See also Le Neve's "Fasti," i. 487, ii. 150; and Foster's "Alumni Oxoniensis." Early series.



REYNOLDE SCOT.

1538—1599 (*about*).

REYNOLDE SCOT is the author of the first work on hōps; he was the younger son of Sir John Scot, of Scots Hall, near Smeeth, in Kent, and educated at Hart Hall, Oxford. His treatise is much more practical than the generality of books published in his time. It appeared first of all in black letter in 1574, and is dedicated to the Right Worshipfull Mayster Willyam Lovelace, Esquire, Sergeaunt at the Lawe, who resided at Beddersden (evidently Bethersden, near Ashford), Kent. He recommends him "to look down into the bowels of your grunde for a convenient plot to be applyed to a Hoppe garden," the virtues of which he extols in the highest degree.

In his day the hop must have been a lucrative crop, for he says on page 5, "One acre of ground and the third part of one man's labour, with small costs besides, shall yield unto him that ordereth the same well, forty marks yearly and that for ever." A mark in those days represented 13s. 4d., labour cost but a few shillings a week, and rent a few shillings per acre. The average crop grown to-day is greatly in excess of those of these early times. This is to be attributed to improved general knowledge on the subject of the prevention and mitigation of the ravages of the fly, red spider, and mildew, and to modern appliances for

¶ Berfite platforme

of a Hoppe Garden,
and necessarie Instructions for the
making and mayntenaunce thereof,
with notes and rules for reformation
of all abuses, commonly practised
therein, very necessarie and
expedient for all men
to haue. wher in any
we haue to doe
with Hops.

*Nowe newly corrected and augmented
By Reynolde Scot.*

Who so laboureth after goodnelie, findeth his desire.

Sapient. 7.

Wisedome is nymble than all nymble things.
She goeth thorough and searcheth to all things.



Imprinted at London by Henrie
Denham, dwelling in Pater noſter
Rowe, at the Signe of
the Starre.

Printed 1576.
By the speciall licence of His Maieſtie
of Englande, under the great ſeale,
For priuilegio ad imprimendum ſolam.

Title page of Reynolde Scot's "Hoppe Garden."]

coping with these pests. The Kent crop in 1907 reached 8 cwt. per acre, and the average price was 60s. per cwt. The cost of cultivation, including poleing, washing, stringing, picking, drying, and packing, might be put down at £50 per acre. As to varieties, Scot knew only the wild and the tame hop, whilst the district in which he farmed now grows the Fuggle on the weald clays and the Canterbury Golding and the Brambling Golding on the chalk. The whole area under growth of this crop throughout the country amounted last year to about 45,000 acres.

Of the value of hops as an addition to "mault," he adds:

For if your ale may endure a fortnight, your "Beere" through the aide of the "Hoppe" shall continue a month, and what grace it yieldeth to the taste all men may judge that have sense in their mouths; and if the controversy be betwixt Beere and Ale: it sufficeth for the glorie and commendation of the Beere. A good and kindly hoppe beareth a great and green stalk, and appeareth out of the ground naked without leaves until it be half a foot long. Alder poles are best and to be preferred to Ash or Oak.

He illustrates the various methods of setting the roots, making the hills, and ramming the poles, tying the bine, and the pulling up and preservation of the same, with quaint illustrations. As to the gathering, he says that "they 'blowe' at Saint Margaret's daye, at Lammas they bell, and 'ware brown' about Michaelmas." There is also a chapter on hop ostes, the keele, and packing.

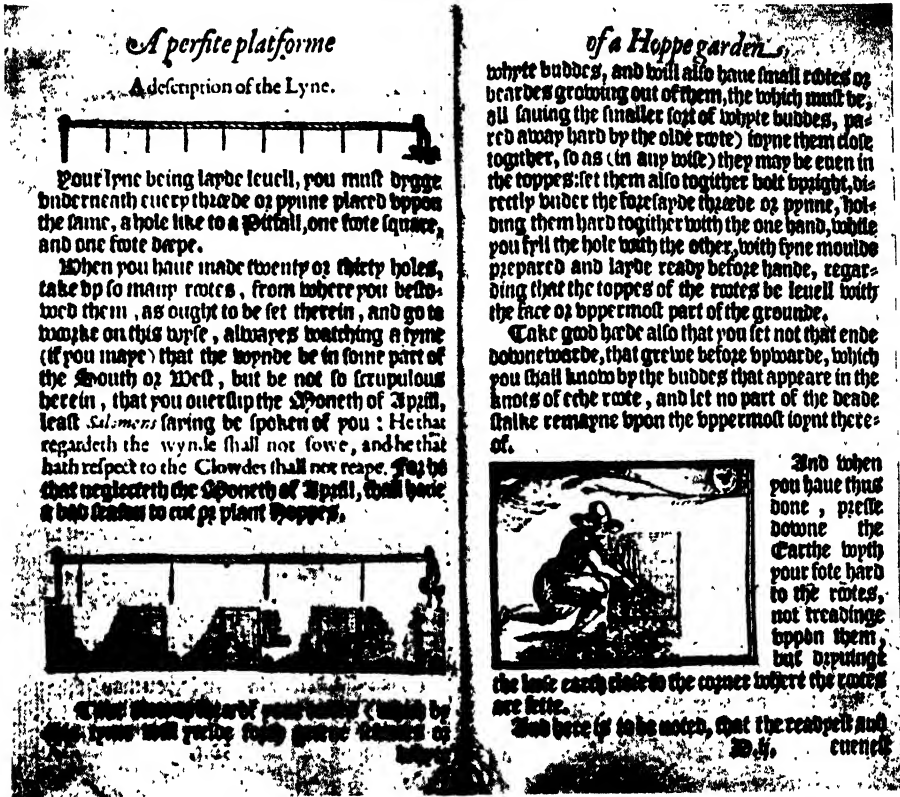
To constitute a perfect platform the author advises ground that is good for the purpose—a convenient standing and a proper quantity. Good land he calls rich, mellow, and gentle, and the situation to have the sun shining upon it the greater part of the day. He advises to have a certain term of the land, lest another man reap the fruit of labour and experience. He recommends the distance of 7ft. or 8ft. between the hills of plants, and two or three roots to be placed in one hole. Four poles—best of alder—are placed in each hole, set as nowadays, and leaning a little outward, one from another. Throughout the work cuts are given of most of the performances, and the book shows a thorough acquaintance with the subject, of which the practice is not very much altered in the present time. See pages 37 and 38.



LEONARD MASCALL.

1546—1605 (about).

AGRICULTURE had attained a considerable degree of respectability towards the end of the sixteenth century, and seems to have made the greatest advancement in the Eastern Counties. According to Harrison,*



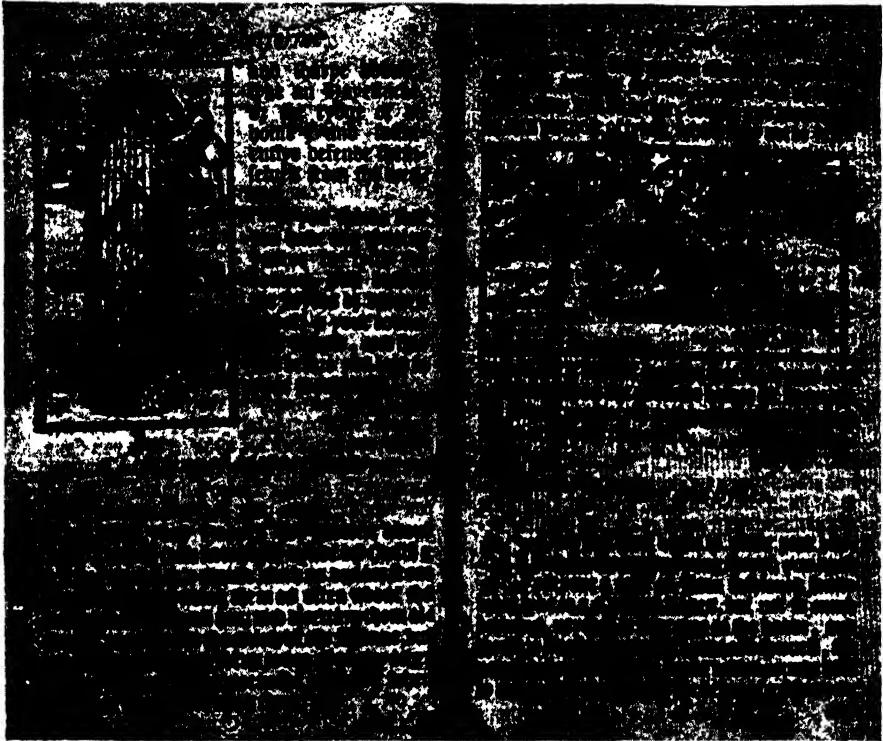
Pages from Reynolde Scot's "Hoppe Garden," See page 34.

about this time, "a farmer will thinke his gaines very small towards the ende of his terme if he have not six or seven yeares rent lieing by him, therewith to purchase a new lease, beside a faire garnish of pewter on his cupboard, with as much more in odd vessels going about the house; three or four feather beds, so many coverlets and carpets of tapestrie, a silver salt, a bowle for wine, if not a whole neast, and a dozen of spoones to furnish owte the sute." "Bishop Latimer's father was a yeoman, and

* Description of England.

held a farm of £3 or £4 by the yeare, and hereupon he tilled so much as kept half a dozen men. He had a walk for 100 sheep, and his wife milked thirty kine. He married his daughters with £5 apiece, kept hospitality with his neighbours, and gave alms to the poore, and all this he did out of the same farm."

Cattle were so scarce that it was enacted that no one should eat flesh on Wednesdays and Fridays without a special licence, and great pains were taken in the Act to show that it was a political and not a religious



*Pages from Reynolde Scot's "Hoppe Garden."
See page 34.*

measure. There was complaint of the vast number of parks in the kingdom, "there being not less than 100 in Essex alone" where nothing but savage and wild beasts were cherished for pleasure and delight, so that "if the worlde last a while at this rate," "wheate and rie would be no graine for poore men to feed on." Great steps were taken to improve the breed of the draught horse in England, and it was made felony to export horses to Scotland.

This reference to the horse induces me to hark back a little. Although isolated specimens of this useful beast had been imported into

THE
Country-Mans
NEW ART OF
PLANTING
AND
GRAFFING:

Directing the best way to make
any ground good for a Rich Orchard:

With the manner how to Plant and Graffe

all sorts of Trees, to Set and Sow Curnels; As

also the Remedies and Medicines concerning
the same; With divers other New Experiments:

Practised by LEONARD MASCALL.

Published by Authority.



London, Printed by Iohn Bell, and are to be sold at the East
end of Chis Church, 1652.

the country from Flanders, Spain, and the East during the two previous centuries, the horse does not appear to have shown any great improvement, and it was left to King Henry VIII., who was always fond of show and splendour, to make new laws regarding them. He affixed a certain standard below which no horse should be kept; the lowest height for the stallion was 15 hands, and for the mare 13 hands, and even before they had arrived at their full growth no stallion above 2 years old and under 14½ high was permitted to run on any forest, moor, or common where there were mares.

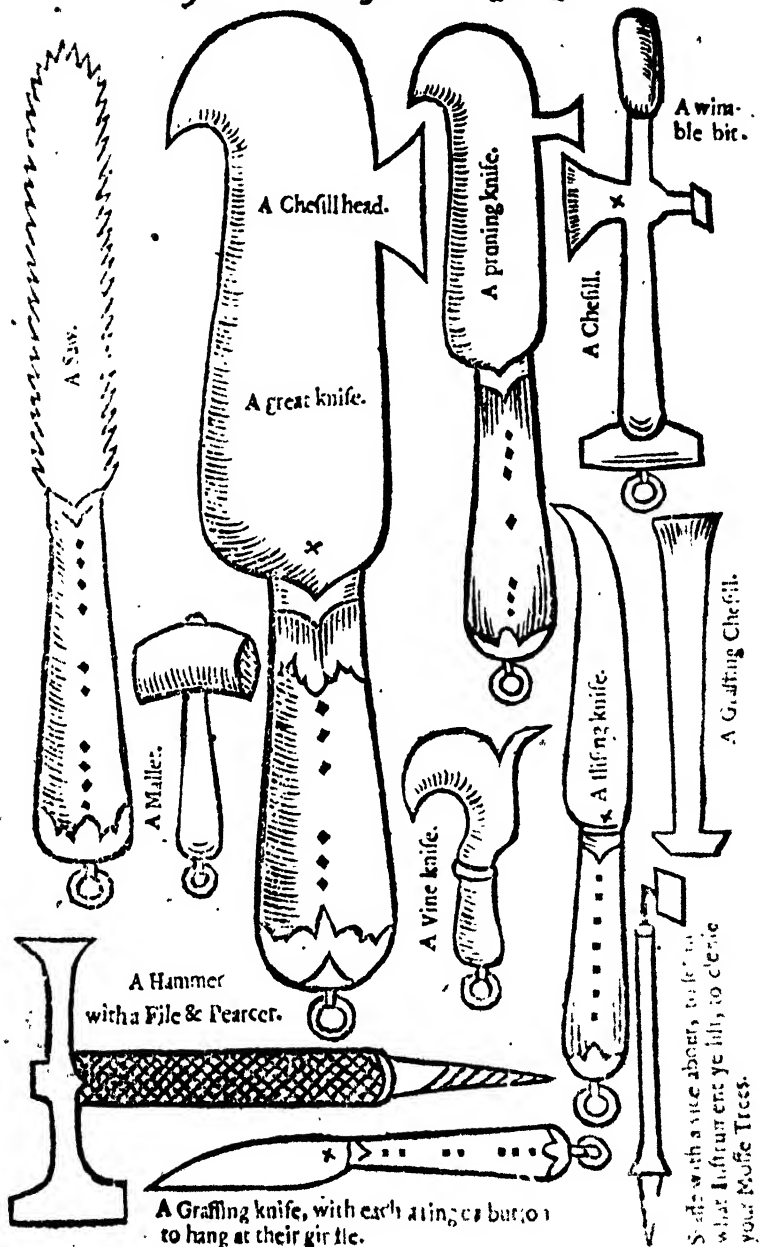
At Michaelmastide the neighbouring magistrates were ordered to "drive" the forests and commons and destroy all not likely to produce a valuable breed. He likewise ordered that in every deer park a certain number of horses, in proportion to its extent, and each at least 13 hands high, should be kept; and that all his prelates and nobles and "all those whose wives wore velvet bonnets" should keep stallions for the saddle at least fifteen hands. These ordinances, however, perished with the King by whom they were promulgated, but they no doubt helped to improve the breed, although it could not have contributed largely to the number, for we are told that when Queen Elizabeth was expecting the arrival of the Spanish Armada she could barely muster a regiment of cavalry to oppose her enemy, and these mounts are described as "strong and heavy beasts, but fit only for slow draught."

About the time of the Restoration the value of the Arab seems to have been discovered, and a fine specimen was purchased for King James by Mr. Markham, probably the writer on husbandry whose works are referred to later on, a new impulse being given to the cultivation of the horse by the inclination of the Court to patronise gaiety. Race meetings had for some time been established, and Royal plates were given at the principal meetings. Many sportsmen were induced to send to the East for numbers of this fleet-footed breed for the sake of getting light and fine horses for speed, and from this period onwards the system of improvement has been zealously followed until we now possess horses of unequalled beauty, speed, and strength.

It seems remarkable that about this time two of the most popular plants of the present day should have been brought into this country, introduced by the same man, Sir Walter Raleigh—I refer of course to tobacco, now the greatest leaf luxury of life, and the potato, "the bread root" of the British Isles. They were both looked upon at first as poisonous, and now their consumption is among the largest of vegetable products.

Although the potato was known to English botanists before 1596, horticulture was too ignorantly practised in this country to admit its rapid introduction among our cultivated crops. Thus in 1619 they were an expensive luxury, for in that year of King James's reign a small dish of them provided for his Queen's table cost 1s. per pound; but what is

Instruments for Graffing.



this when we see to-day so-called improved types being sold at 10s. per pound.

This is somewhat digressing from our text, but it is interesting to have exhibited these acts and deeds of "our fathers as they lived," who by their talents and industry contributed their quota of knowledge towards the advancement of all that pertains to agriculture as known to-day.

The Mascalls are a Sussex family of long standing, and at the time of the special subject of this notice their home was at East Mascalls, a residence in the parish of Lindfield; they also occupied Plumpton Place, near Lewes. The old house is still standing, but owing to superstition and other circumstances, my friend Mr. Percy Shelley Bysshe—who also belongs to one of the oldest Sussex families—tells me that it is divided into three cottages, and the spot where it is said roses were first introduced into these parts is now flooded by the moat. Old people still cherish the fact that the pippin apple was first brought there from over the water, and they say that the moat contains many large fish. It now belongs to the Earl of Chichester.

The date of Leonard Mascall's birth is uncertain, as nothing can be found about him at Somerset House or in the registry of Eastern Sussex, but he is supposed to have been born about the year 1546, as it falls in with certain statements as to his age made in his books. Fuller asserts that he introduced pippin apples and carp from over the sea, but he certainly was not the first to bring this fish to our lakes and ponds, although he may have imported some from the Danube and bred them in the moat at Plumpton Place. Some describe him as being clerk of the kitchen to Archbishop Parker. He undoubtedly travelled on the Continent, and it is certain that he was acquainted with one or more foreign languages, as he refers in his books to translations.

His first work is stated to have been published in 1572, and entitled "A Booke of the Art and Manner how to graff and plant all sortes of Trees, how to set stones and sow Pepins, to make wilde trees to graff on, as also remedies and medicines, with other new practices," by one of the Abbey of St. Vincent, in France, with the addition of certain Dutch practices, set forth and Englished by L. M.

This book extends to many editions during the next century, that for 1592 being dedicated to Sir John Paulet, Knight, Lord St. John. The illustrations I have used from a later edition are very curious.

This book, although largely a translation, contains a good deal that is original, the record of his own practice and observation.

In his instructions for the planter and graffer he says :

It shall be good to have understanding of the ground where ye doe plant ; first, it behoveth to make a sure defence, to the end that onely rude persons and children may be kept out, but all kinds of hurtfull cattel, as oxen, kine, calves, horses, hogs, and sheep, as the rubbing of sheep doth greatly burne the sap, and often doth kill young

THE Gouernment of Cattell.

Diuided into three Bookes.

The first, entreating of Oxen, Kine, and Calues; and how to vse Buls, and other Cattell, to the yoake or fell.

The second, discoursing of the Gouernement of Horses, with approued Medicines against most Diseases.

The third, discoūering the ordering of Sheepe, Goates, Hogges, and Dogges, with true Remedies to helpe the Infirmities that befall any of them.

Also perfect iustructions for taking of Moales, and likewise for the monthly husbanding of Grounds, as hath been already approued, and by long Experience enter-
tayned amongst all sorts, especially Husbandmen,
who haue made vse thereof, to their great
profit and contentment.

Gathered by LEONARD MASCALL.

LONDON,

Printed by Tho: Purfoot, for Francis Falkner, and are to be
sould at his Shop, neere Saint Margarets hill
in Southwarke. 1627.

trees and plants, and were they are broken or bruised with cattell, it is doubtfull to grow after. It shall be good also to set, plante, or graffe trees all of like nature and strength together that the great and high trees may not overcome the low and weak.

Here is his recipe for making an oak or other tree to be as green in winter as in summer (page 45) :

Ye shall not take the graff of an oake tree or other tree and graffe it upon the holly tree; the best and most surest way is to graffe one through the other. Take also your rose buds in the springtime and then graffe them upon the holly, and they shall be green all the year.

On page 47, in referring to orchards, he says :

Grasse is thought deedfull for moysture, so you let it not touch the roots of your fruit trees; for it will breed mosse, and the boall of your tree near the earth would have the comfott of the sun and aire.

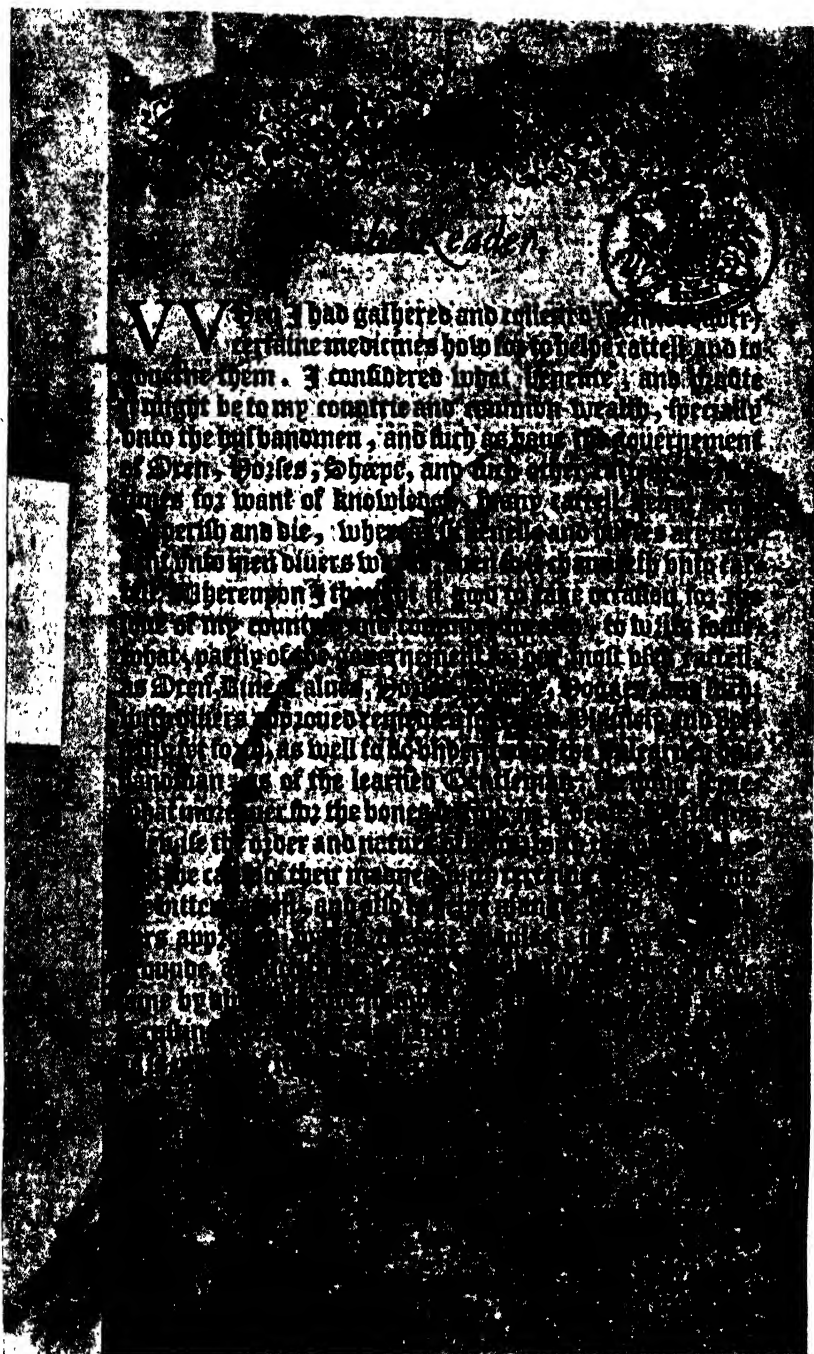
The last chapter is on "hoppes," and he finishes up on the seventieth page by

Wishing long life and prosperous health
To all furtherers of this commonweath.

The next work written by Mascall is dated 1581, and is dedicated to "Mistresse Catharine Woodforde, wife of Maister James Woodforde, Esquire, chief clerke of the kitching to the Queenes Majestie," and he goes on to state that she had "a desired mind how to use and govern poulterie to profit for maintenance of her housekeeping," and this and having known her at "Brestall" (Bristol), he dedicates the volume to her.

It is entitled "The Husbandrye, Ordring, and Governement of Poultrie," and appears to be the first book written on that subject. It contains eighty-five chapters, comprised within 154 pages and much of the information given would seem to have been largely drawn from the ancients; but it would be unfair not to give him the credit of being painstaking, even if a good deal of his writing is not based upon actual experience in Sussex. He treats very fully upon fowls, turkeys, geese, peacocks, swans, pigeons, doves, quails, and many other wild birds. He shows how "to make white burdes come of anye egges" and "to make hennes of the colour of your egges ye set her." To cause hens to lay eggs all the winter, he says "take the cropper of nettles when ready to seed, dry them and mix them with bran and hempseed, and give it to them in the morning."

He adds that, although a good deal of instruction is taken from the old writers Columella and Stephanus, there is added many practices unknown to "all good householders." It is disappointing not to find any description of the various types of fowls cultivated in his day, for as he lived near a district now celebrated for poultry rearing, it would have been interesting had he given some information regarding the Sussex variety of the Dorking.



From Leonard Mascall's book on "The Government of Cattell." 1600 edition See page 46.

For the proof of Fuller's statement we have Mascall's own word and witness in his work, issued in 1590, and entitled "A Book of Fishing with Hooks and Line, and all other Instruments thereunto belonging, Sundrie Engines and Trappes to Take Polecats, Buzards, Rattes, Mice, and all other Kindes of Vermine and Beasts whatsoever, made by L. M." He refers to the carp as follows: "The carpe is a strange and daintie fish to take. The first bringer of them into England was Maister Mascoll, of Plumstead, in Sussex, who also brought the planting of the pippin into England." This probably refers to one of his ancestors, and the word Plumstead may be a printer's error.

The book with which we are most concerned is that first appearing in 1596, under the title of "The Government of Cattell." I give a reproduction of the title and some other pages from a later edition. Its contents are fully detailed, and it is dedicated to the "Right Worshipfull Sir Edward Montegue, Knight," by the author, with an increase of worship to the honour of God, and the benefit of the Commonwealth. It comprises 307 pages, and finishes with a monthly calendar for the farm, garden, labourer, fish, and health. Like many other of these early writers, his matter is not all original, as he has drawn upon Fitzherbert in more places than one without apparently the slightest acknowledgment. On page 272 is the illustration of a hog's head, showing the method of "ringing his nose like a Rammes horne." (See page opposite.) Many succeeding editions followed, some of them, notably those issued by Gervase Markham during the next half century, contained a frontispiece covered with figures of animals and other illustrations of the horse and ox, showing their diseases by a cleverly delineated method. This book, which also comprises a large amount of the best practical knowledge of the author's period, evidently attracted the attention of the government, for in one of the late editions he describes himself as chief farrier to King James, which office at that time was filled by a man of superior education similar to a leading veterinary surgeon of to-day.



BARNABE GOOGE.

1540—1594 (*about*).

THAT agricultural literature occupied a far higher position among the ancients than it has hitherto attained in our day is certain. A mere enumeration of the names of the authors whose works remain leaves no doubt in our mind on the question of precedence, and to anyone conversant with the methods adopted to-day by some landholders it is a question if farming could not be carried on equally as successfully by

following the directions of these ancient exponents of the art as against the advice tendered by many modern instructors. Nor is the study of these old writers a mere matter of fancy. We could take up almost any one of them, and begin with him, the agricultural year—prepare the field, sow the crop, weed it, reap it, harvest it, thrash it, ascertain the weight per bushel, and the yield in flour or meal, market it, buy and sell, collect manure, and make out at the end of the year a more accurate balance sheet than could be furnished by half the farmers in Great Britain to-day.

Barnabe Googe, of Alvingham, near Louth, is brought down to us as a celebrated poet and translator, born about 1540, and supposed to have been a relation and a retainer to William Cecil, better known as Lord Burghley, Queen Elizabeth's great minister, an ancestor of the present Marquis of Salisbury, and who by this nobleman's interest was gentleman pensioner to the Queen. He is further believed to have been father of Barnabe Googe, Master of Magdalen College, Cambridge, in 1605. Several books emanated from his pen, and that which most concerns us just now is for the best part made up of gleanings from the ancient writers already referred to and described as shown in the photograph on page 49 and also below.* This appears to be the first edition.

His authorities extend from the Bible and doctors of the Church, through the Greek and Roman writers, Homer, Cato, &c., to the moderns as low as Ruellius, Fuchsius, Matthiolus, Cardanus, and Tragus. He subjoins a list of his friends and others who assisted him, which are the same as these mentioned by Googe, many of which it will be noticed are British.

At the back of the title page of some of the editions, dated from Kingstone, are his armorial bearings, with the motto "Post tristia læta." About nine years later another edition appeared, with a new publisher, and at the end is a woodcut of the printers with a motto round it—"Welcome thee Wight that bringeth such Light." Underneath is—"Imprinted at London for John Wight, dwelling in St. Paul's Churchyard at the great North Doore of Paules, A.D. 1586." The book is dedicated to "the Right Worshipful his very good friend Sir William Fitzwilliam, Knight, who held the Treasurership of Ireland for Her Most Excellent Majestie Queen Elizabeth." It was reprinted in 1596, and in 1614 another edition appeared (see page 51), supposed to have been issued by Gervase Markham, of whom I shall have something to say further on.

The text is arranged in the form of a dialogue between four persons—Cono, a gentleman retired in the country; Rigo, a courtier; Metella

* *Conradus Heresbachius* was born in 1508, died in 1576. He wrote various theological works, beside his *Rei Rusticæ*, libri iv., which was published in 1570, and his *Legum rusticarum, et operarum per singulos Menses digestæ*, in 1595.

FOVRE BOOKES OF
Husbandry, collected by M. Conradus Heresbachius, Counsellor

of the high and mighty Prince, the Duke of Cleves.
 Conteyning the whole arte and trade of Husbandry, vvith the antiquitie, and commendation thereof. Nevvelly Englished, and increased, by Barnabe Googe, Esquire.

(.)



GENESIS. 3. 19.

In the sweate of thy face shalt thou eate thy bread: till thou be turned agayne into the ground, for out of it wast thou taken: yea, dust thou art, and to dust shalt thou returne.



IN A P LONDON,

Printed by Richard Watkins.

1577.

1724
 1577
 147
 1724

wife of Cono; and Hermes, a servant—and consists of question and reply.

He states, in his epistle to the reader :

Though I have altered and increased his worke, with mine on readings and observations, joined with the experience of sundry my friends to take from him, as divers in the like case have done, the honour and glory of his own travaile. Neither is it in my minde that this either his doings or mine should deface or any wayes darken the good enterprise or painfull travailes of such our countrymen of England as have plentifully written of this matter but always have and do give them the reverence and honour due to so vertuous and well disposed gentlemen, namely Master Fitzherbert and Master Tusser; whose workes may, in my fancie, without any presumption, compare with any, either Varro, Columella, or Palladius of Rome. You have here set down before you the rules and practices of the olde auncient husbands, as well Greekes as Latines whose very orders, for the most part, at this day wee observe.

He next gives a pageful of names "of such authours and husbands whose authorities and observations are used in this booke." Among the Englishmen he mentions Sir Nicholas Malbee, Capt. Bingham, John Somer, Nicholas Yetzwert, Mr. Fitzherbert, William Lambert, Mr. Tusser, Thomas Wherenhall, Richard Deering, Henry Brockhull, Mr. Franklin, H. King, Richard Andrews, Henry Denys, William Pratt, John Hatche, Phillip Partridge, and Kenworth Dartforth. It will be noted that many of these bear close resemblance to some of the county family names of to-day.

Here is an interesting extract from pages 5 and 6, modernised for simplicity of reading.

Most certain it is that a great number of Emperors have sprung from the plough, and, to let others go, it is known that the Emperor Galerius and Maximinus came both from poor heardsmen to the Imperial dignity. The like is written of Lustine, Constantianus, Probus, and Aurelianus. The stories report that Curius the Emperor was found in his house "boyling of a rape roote," when he refused the great sums of gold brought by the Samnits Ambassadors. Cicero called Husbandry the Mistress of Justice, diligence and thriftiness; some others call it the mother and nurse of all other arts. For whereas we may live without the other, without this we are not able to sustain our life. The only gentlemanly way of increasing the house is the trade of husbandry, and for this cause they were always accounted the perfectest gentleman that, content with the living their Ancestors left them, lived in the countrie of their Lands, not meddling with, figging, chopping and changing, not seeking their living by handicrafts.

Varro in his time sayeth, there was great complaint made that the Fathers, forsaking the plough and the sickle, began to creep into the Towne and busied themselves rather with Pageants and Midsummer games than with the vineyard of the field; whereas the governors of Rome so divided the year as they assigned only the ninth day for business of the City and the rest of the time for the tillage of the country, whereby, being hardened with labour, they might be better able to abide "the travaile of warres." These country people were always preferred before the people of the City, and more Nobility thought to be in them that till the ground abroad than in those that, living idly within the walls spent their time under the shadow of the penthouse; except a man will, with the common sort, think it more honest to get his living with the blood

THE
WHOLE ART
AND TRADE
OF
HUSBANDRY,
CONTAINED
In foure Bookes.

Viz:

- I. Of Barable-ground, Tillage, and Pasture.
- II. Of Gardens, Orchards, and Woods.
- III. Of Feeding, Breeding, and Curing
• of all manner of Cattell.
- IIII Of Poultrie, Fowle, Fish, and Bees.

Wrote by BARNABY GOOGE, Esquire.

GENESIS. 3. 19.

In the sweat of thy face shalt thou eat thy bread, till thou be
turned againe into the ground, for out of it wast thou taken:
• dust thou art, and to dust shalt thou returne.

LONDON:

Printed by T. A. for Richard More, and are to be
Sold at his Shop in S. Dunstons Church-
yard in Fleetstreet. 1614.

and calamity of poor fools, or not daring to deal with the sword, to make his gain of merchandise, and, being a creature of the land, contrary to his kind, give himself to the rage of the seas and the pleasure of the windes, wandering like a bird, from shore to shore, and country to country, or to follow this goodly profession of bawling at a bar and for gain, to open his jawes at every bench.

In referring to seeds these old time husbanders evidently knew the value of new as against old. On page 23 he says :

And though there be sundry sorts of seeds and every country has its kind, and sows such as best agrees with their nature: yet generally this is to be regarded that you sow none that are old and dead, but the newest, for old seed doth oftentimes, change their nature: as the seed of Colworts, that being sown turneth to Rapes: and Rape seed likewise into Colworts. The best seed also is that which is weightiest and lyeth in the bottom and hath a good colour.

More than one species of wheat or hybrids thereof seem to have been known to these early writers. Gooze says on page 28 that Galen states :

Next to wheat and barley followeth ze,* being the wean betwixt wheat and barley. He mentions two kinds, and of the latter says: "With one grain in every husk, growing in ranks and in the top resembling barley with his sharp awnes." In Italy it is used as provender for horses. Both bread and drink might be made of it very well, but it is troublesome to grind. It flowereth in June and is ripe in July.

They appear to have known two kinds of rape, one grown for its seed for bird feeding and the production of oil, probably what we call in the present day German rape or colza. The other grew in great roundness of root, or else very flat, and reached an enormous size. Pliny writeth :

That he had seen rootes of them that had weighed forty pounds, and others had seen them weigh one hundred pounds, and it was considered wonderful that from so little seed should come so great a root.

This description must surely represent what we call to-day a Swede turnip, as it is accredited to be an evolution from the rape.

Here is an extract from page 36 having reference to a plant which surely must be what we know as lucerne.

Amongst all sorts of fodder, that is counted for the chief and the best which the people of old time call Treefoile, the Frenchmen call Grandtreple, and the Spaniards call Alfalfa. [In Spain lucerne is still called alfalfa.] Pliny writeth "that it was brought by the Romans out of Media differing almost nothing from Tryfolly or three leaved grass."

On page 42 is explained the difference between a pasture and a meadow, and it seems extraordinary that in those early times so much

* This word is known to us as the botanical name of maize, but the species of corn here mentioned have no affinity with that plant, which was first cultivated in England in 1562. For this fact I am indebted to Dr. B. Daydon Jackson, of the Linnean Society.

of Earable-ground and Tillage.

25

are sowed in the Spring tyme. In Asia and Greece they sow all, as they say, at the setting of the Scarchen Scarres. Now, although there be certaine precepts of the tyme of sowing, and how much seed is meete for euery quantitie of ground, surely, they might as I haue said before, for their owne Countrey and nature of their ground, giue a kinde of guide, but to determine any thing herein certainly, there is no man that can doe it, but the ground and euery mans owne practise is herein the best Master. One ancient generall rule of husbandry there is, wherein we are warned in cold Countries to sow late, in temperate Countries sooner, and in one hote Regions soonest of all. Erastothenes saith, that India is subject to much raines in Summer, and that then they sow Barle, Sorghum, Rice, and Millet: and in Winter, Wheat, Barley, Peas, &c. and other fruits that we haue not. Heliodorus, the Prince in his tyme of husbandry, wils vs to sow according to the custome of Greece, his naturall Countrey. Virgil, Cato, Varro, Columella, and Plinie, appoint their rules for Italy, whose mundes if you will haue followed in all other places, you shall but seek to couer euery pot with one court. But to come to the matter, As the seedes of sundry natures require sundry tymes of sowing, and diuers sorts of ordering, and that herein euery Countrey hath his guise, I will here (observing such customes as are most generall to them all) severally shew you of euery seede by himselfe, and so declare vnto you the order of their sowing. And first, amongst all the fruits and graine that the earth doth yeld for our sustenance, the chiefest place is rightly giuen vnto wheat, called in Greeke *triton* in Italian *Grano*, in Spanish *Trigo*, in Dutch *Weyls*, in French *Fourme*. Wheat, as a graine most needfull for a man, and therefore most fruitful, because God hath ordained it to nourish man withal. It is wonderfull what yeld it hath bene of in some Countries. Augustus his Deputie sent him from Babilone in Africa of one graine of wheat foure hundred branches. And Plinie witnesseth, that in the same place, one bushell hath yelded a hundred and fiftie bushels.

R I C E. There are that hold opinion, that this which the common people call Wheat, the Germanes *Weyls*, and the Hollanders *Terve*, is not the true Wheat, but a kinde of Rice, and that the true Wheat which the Italians call *Grano*, groweth onely in Italy and in Spaine.

D

CONO.

should have been known on a subject that remains to-day on very much the same lines :

The old writers do most of all prefer pastures, as the ground that requireth least to do about it, and they were called *Parata* because they were always in readiness and needed neither great charge nor labour, nor are in danger of storms or tempests ; even those which are overflowed with water are sufficiently recompensed with the fatness that the water leaves behind. Where the ground is rich and dry they serve for meadows because with the dunging by cattle it wears all the better, whereas with the continual bearing of hay it grows to be mossy and naught.

Ashes are recommended as the best application to destroy moss.

But the best method of all is to plough it ; for the ground after his long rest will bear goodly corne. It will scarcely recover his old estate again for pasture within three or four years. When you mean to let your ground lie again in meadow or pasture your best plan is to sow it with oats, for they are a great breeder of grasse. . . . Some do cast hayseed gathered from the hayloft over the ground before they harrow it.

Is not this just the method of laying down land to grass that some farmers follow to-day ?

It is recommended to be mowed the first year, fed to sheep the second, and the greater sort of cattle the third. The molehills and dunging of horse and bullocks must with a spade be cast about. The best herb for pastures or meadows is trefoile or clover, and the worst is rushes, fern, and horsetail.

In the letting of ground it is generally covenanted that the tenant shall not break any grass land without the leave of the lord.

An equally interesting chapter on the live stock of the farm follows, every detail of management being touched upon, chief place being given to the ox. Four degrees were made in the ages of beasts—calves, yearlings, steers, oxen. Dividing them further, they were called bull calf and cow calf, heifer and steer, bull and cow. The making of cheese and butter seems to have been as well understood as now. In referring to the names given to dogs he says, "the Greeks and the Latins selected words of two syllables ; the Germans but one syllable, as ball, slut, patch, and grim."

Whoever takes the trouble of examining the works of these old writers will be surprised to find how much several of the more modern compilers of many voluminous works are indebted to them, but have not had the generosity to acknowledge the source of a great deal of their information. When we come to consider that there are no traces of what the moderns call *system* in the writings of these ancients, they merely cultivating the few popular things that were needed in the arts and conveniences of life, the more is credit due to them for the terse and simple manner in which their methods have been expounded. A crop of grain and a fallow appears to have been the extent of their agricultural course.

This interesting book concludes with some curious Olde English Rules for purchasing land :

*Who so will be wise in purchasing,
Let him consider these points following :*
First see that the land be clear
In title of the seller ;
And that it stand in danger
Of no woman's dowrie ;
See whether the tenure be bond or free,
And release of every fee-of-fee ;
See that the seller be of age,
And that it lie in not mortgage ;
Whether ataille be thereof found,
And whether it stand in statute bound ;
Consider what service longeth thereto,
And what quitrent thereout must goe,
And if it become of a wedded woman,
Think thou then on covert baron ;
And if thou may in any wise
Make thy charter in warrantise,
To thee, thine heyres, assignees also ;
Thus should a wise purchaser doe.

Barnabe Googe died in February, 1594, and was buried in Coking Church.



SIR HUGH PLAT.

1552--1611 (*about*).

SIR HUGH PLAT was looked upon in his day as a learned and keen observer and clear-headed writer, and a valuable pioneer in the trenches of knowledge, yet so great was his modesty that most of his works seem to be posthumous. He held a correspondence with all the most enlightened exponents on agriculture in his day, and such was the justice of his methods that, in direct contradiction to many other writers of his time, he always named the originator of every discovery communicated to him.

Nothing appears to be known of his general status in life, beyond that he seems to have been of the profession of the law, as he first of all styled himself of "Lincoln's Inne, Gent." He had a seat called Copt Hall in Essex, another styled Bishop's Hall at Bednall (now Bethnall) Green, in the parish of Stepney ; he also had a town residence at Lincoln's Inn, with a garden in St. Martin's Lane, in 1606, where he grew a second crop of beans on plants that had previously borne, and had been cut down.

His first work was published in 1594, and described as follows: "The Jewel House of Art and Nature. Conteyning divers rare and profitable inventions, together with sundry new experiments in the Art of Husbandry. Faithfully and familiarly set downe according to the authors owne experience, by Hugh Platte, of Lincolnes Inne gentleman, London, printed by Peter Short dwelling on Bradstreet Hill, at the Signe of the Star, and are to be solde in Paules Churchyard, ninety-six pages." The 1653 edition, of which I have a copy, and illustrate the title page opposite, is addressed to the Munificent Lover of all Learning, the Right Honourable Boulstrood Whitlock, one of the Lord Commissioners of the Great Seal of England, &c., and although its contents are varied, there is a good deal in it that pertains to our subject; another edition is dedicated to Richard Devorax, Earl of Essex. The author stumbled upon the use of steam, and constructed a bellows, which he illustrates, and contrived a use for it to sprinkle rose water and other scents about, by standing it over a fire, "and by this means a small quantity of sweet water will be a long time in breathing out."

On page eighty-eight is illustrated a waggon to be drawn by men instead of horses. He says;

The joints and other parts of this wagō are so knit together with hooks and pins as that it may easily be disjoined and taken insunder, whereby many of them may be couched in a narrow room, and will lie close together in a ship. It is to be drawn by six men, whereof two of them must labour at the fore-carriage thereof, and at either wheel other two, which must work by winding of the handles (which are of purpose fastened both to the nave of the wheel and axletree), either forward or backward as occasion serves.

In a chapter on salt he states on page 102:

It is salt that makes all seeds to flourish and grow, and, although the number of those men is very small who can give any true reason why dung should do any good in arable grounds, but are led thereto more by custom than any philosophical reason, nethertheless it is apparent that no dung which is laid upon barren grounds could in any way enrich the same if it were not for the salt which the straw and hay left behind them by their putrifaction. And therefore all these simple sorts which leave their muckheaps abroad, and subject to the weather, show themselves to be but mean husbandmen, for the rain which falls upon these dunghills flowing downwards into the valleys, doth also carry with it the salt of the dung, which dissolveth itself with the moisture. The labouring hind when he carries his dung to the fields, he leaves it in certain heaps, and a while after, he cometh to spread it all over the ground, and afterwards when the field is sown with corn it is more green and rank in those places where the same heaps were first laid. From this it may be gathered that it is not the dung itself which causes fruitfulness, but the salt which the plant has sucked out of the ground.

His treatise on manures displays a remarkable acquaintance with the fertilising properties of different substances, and a knowledge of the importance of covering dunghills from the action of the sun and

THE
JEWEL HOUSE
OF
—Art and Nature :

CONTAINING
Divers Rare and Profitable Inven-
tions, together with sundry new Experiments in
in the Art of Husbandry.

Divers Rare and Profitable Inventions

Divers Chymical Conclusions concerning the Art
of Distillation, and the rare practises and uses thereof.

Faithfully and familiarly set down, according
to the Authours own Experience.

By Sir Hugh Plat of *Lincolns-Inne*, Knight.

Whereunto is added, A rare and excellent Discourse
of Minerals, Stones, Gums, and Rosins ; with the vertues
and use thereof, By D. B. Gent.

LONDON : Printed By *Elizabeth Alsop*, and are to be
sold at her house in Grubstreet, near the Upper Pump, 1653.

rain. His list of natural manures is almost as copious as ours of the present day.

He gives a practical discourse upon marl, extending over several pages, and concludes "that is a natural and yet a divine soyl, being an enemy to all weeds that spring up of themselves, and gives a generative vertue to all seeds that are sown upon the ground by the labour of man." He recommends muckheaps to be protected by cheap covering, "such as they use in the low country to make their barns, a pattern whereof stands to be seen near unto St. Albones, not far from Park Mill." In respect to the ear of barley illustrated in this book, he says, on page 139:—

I have thought good to prefix in the front of this treatise the portraiture of an ear of summer barley, being drawn truly and sharply, according to the length and breadth thereof, which, together with sundry others of the same proportion (as by divers eyewitnesses of good credit I can prove and justifie), did grow this summer at Bishop's Hall, where I dwell, to the great admiration of the beholders; the stalk of which, together with the ear, was measured to be an ell and 3in. in length from the ground to the summity thereof. And this I did in barren ground by the help and means of waste soap ashes. I have also found the like success thereof in pasture grounds by the means aforesaid.

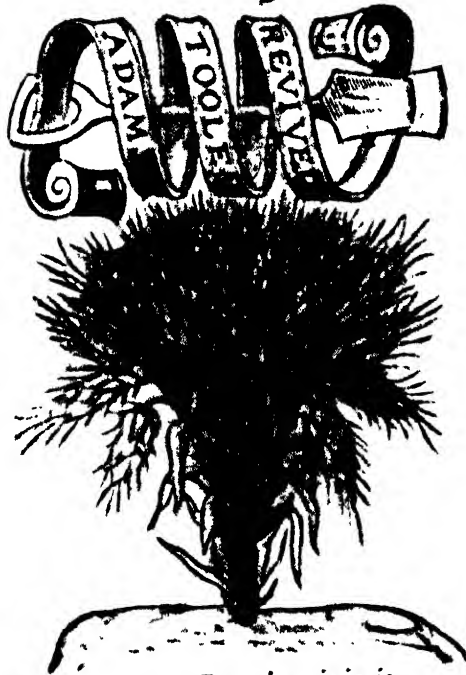
Sir Hugh also wrote a small booklet, entitled "Sundrie New and Artificial Remedies against Famine," evidently before he became a knight, for he adds, "written by H. P. Esq., upon the occasion of this present Dearth," printed by P. S., 1596. He was also the writer of a work on the "Setting of Corne," divided into eight chapters. An illustration of the title page is given opposite. He relates that the art of dibbling corn originated with a silly wench who was employed in setting carrots and had some seeds of wheat in the bag that were accidentally put into the holes, when the stems showed a very superior luxuriance of growth. He describes the mode and way of performing the work, and states the produce to be 15qrs. of wheat per acre, against the old way of sowing to be only 4qrs. He also says that a western gentleman steeped, two years together, his barley in the sea water, and then sowed the same in 1595 and 1596, and had very plentiful crops.

In his "*Floreas Paradisæ*," "beautified and adorned with sundry sorts of delicate fruites and flowers" to be "solde in Paules Churchyard at the signe of the Holy Ghost, 1608," he refers to "the rare and most peerless plant of all the rest, I mean the grape," and the wholesomeness of the wine made from his garden at "Bednall-green neare London," and adds:

If any exception shold be taken against the race and delicacie of them I am content to submit them to the censure of the best mouthes, that profess any true skill in the judgement of high country wines; although for their better credit herein I could bring in the French Embassador who gave this sentence upon them: that he never drank any better new wine in France. And Sir Francis Vere, that martiall mirrour of our

The newv and admi- rable Arte of setting of Corne:

With all the necessarie Toolles and other
Circumstances belonging to the same: the
particular titles whereof, are set
downe in the Page
following.



Magnus Deus in minimis.

Imprinted at London by Peter Short, dwelling at the
signe of the Starre on Breadstreet hill.

1600.

See opposite page

times, assured me the same, and I make some doubt whether I shall need to bring in that renowned Lady Arabella, the Countesse of Cumberland, the Lady Anne Clifford, the Lady Hastings, the Lady Candish, and most of the Maids of Honour, with divers Lordes, Knights and Gentlemen of good worth that have generally applauded the same.

In another connection he refers to Master Richard Pointer as a "most cunning and curious grafter and planter of all manner of rare fruits," and to "Master Henry Bunbury of Touthil-street, near unto Westminster as a painful planter," and to "that most affectionate lover of plants Master Warner neere Horsley Down, by London (now known as Bermondsey)."

He thus finishes the chapter:—

Heere I will conclude with a pretty conceit of that delicate knight Sir Francis Carew; who for the better accomplishment of his royall entertainment of our late Queene of happy memory at his house at Beddington led her Majestie to a cherrie tree, whose fruite he had of purpose kept backe from ripening at least one month after all cherries had taken their fairwell of England. This secrete he performed by straining a tent of canvas over the whole tree and wetting the same now and then with a scoope or horne, as the heate of the weather required; and so by withholding the sunbeames from reflecting upon the berries, they grew both great and were very long before they had gotten their perfect cherrie-colour; and when hee was assured of Her Majesties comming, he removed the tent, and a few sunny days brought them to their full maturitie.

He mentions his "conceyted booke on gardening, wherein he has set down sundrie observations which neither Tusser, though he have written sharpely, nor Hill, though he have written painfully, nor Master Barnabe Googe, though he have written soundlye, applying himself in his whole discourse to our soyle and clymate, hath as yet discovered to the world."

Later editions of this book were issued under the title of "The Garden of Eden: an Accurate Description of all Flowers and Fruits now Growing in England, with Particular Rules How to Advance their Nature and Growth, as well in Seeds and Herbs, as the Secret Ordering of Trees and Plants."

"The Second Part of the Garden of Eden, or an Accurate Description of all Flowers and Fruits Growing in England, with Particular Rules How to advance their Nature and Growth, as well in Seeds and Herbs, as the Secret Ordering of Trees and Plants," by that learned and great observer Sir Hugh Plat, Knight.

This book ran through several editions during the following century. The sixth, of which I also possess a copy, was issued in 1675, printed for William and John Leake at the Crown in Fleet Street, betwixt the two Temple gates. It is published by Charles Bellingham, a kinsman of Sir Hugh's, and addressed to the Honourable and most perfect gentleman Francis Finch, junior, of the Inner Temple, Esquire. Sir Hugh was evidently associated with all the notabilities of his time, for the following names are mentioned in connection with references to various experiments with plants: Lord Zouch, Sir Francis Walsingham, Sir Thomas

Challenor, Sir Cuthbert Buck, Lord Mayor of London, and Sir Edward Denny. He recommends horn shavings for field peas, as they had been used most successfully by Mr. Plomet at Bethnall Green. On page 130 he complains of the germination of seeds :

Whereof the hundredth one came not up, although peradventure I might be abused in the seeds, which is an ordinary practice in these days with all such as follow that way, either to deliver the seeds which they sell mingled with such as are old and withered, or else to sell such as are stark naught. I would there were some fit punishment devised for these *petit cosenors* by whose means many poor men in England do oftentimes lose. Cheapside is full of these lying and forswearing huswives.

It can only be inferred from such a statement that in these times the sale of seeds was left mainly to street hawkers.

He was the third son of Richard Platt Brewer, of London, and was christened at St. James's Garlick Hythe, London, May 3rd, 1552. In the register of Lincoln's Inn it is recorded that on May 4th, in the thirteenth year of Elizabeth's reign (1571), he was admitted a student, introduced by John Pinkerynge and Thomas Lodge. He evidently married, as, in his will, executed on October 19th, 1608, he left his wife Judith all his property. That he had some sons is proved by the fact that in Hornsey Church is a monument to William Platt, founder of some fellowships in St. John's College, Cambridge. He died in 1637, and the inscription tells that he was one of the sons of Sir Hugh Platt, of Bethnal Green. As several members of this household are buried at Hornsey, it may be that it was the family burial place.

It is curious to observe how frequently these old writers spell their own names in different ways. It may be due to the publishers, who seemed in that day to have greater control over the books issued than the authors themselves.



JOHN NORDEN.

1548-1625 (*about*).

ALTHOUGH several other authors appeared about this time upon surveying and measuring land, John Norden seems to have been held in the greatest repute. He was the writer of the "Surveior's Dialogue," which first appeared in 1607, printed by Hugh Astley, dwelling at St. Magnus Corner. A second edition followed in 1610, printed for J. Busby at his shop in St. Dunstane's Churchyard in Fleet Street. It was issued again in 1618, and the title page of this edition is reproduced on page 63. It is addressed from his "poore house at Hendon," and dedicated to "the Right Honourable Robert, Lord Cecill, Baron of Esingdon, Vicecount

Crambourne, Earle of Salisburie, Principall Secretarie to the most high and magnificent Prince, James, King of Great Britain, France, and Ireland, Master of his Majestie's Wards and Liveries, of his Majestie's most Honourable Privie Counsell, and Knight of the most Noble Order of the Garter." He is stated to have belonged to a genteel family in the county of Wilts, and was born in about the year 1548. He became a commoner of Hertford Hall in 1564, and took the degree of master of arts in 1573.

John Norden was the first Englishman who designed a complete series of county histories and maps. He was then living at Fulham, and was friendly with Gerard, the herbalist, who gave him some red beete seed, "which, although altogether of one colour in his garden, brought forth many other beautiful colours."

Gerard mentions the fact in his *Herbal*, vol. 2, page 319. In 1600 he was acting as Surveyor of Crown Woods and Forests in Berkshire, Devonshire, Surrey, and elsewhere, and in 1605 petitioned for a similar office under the Duchy of Cornwall, complaining that he had spent £1000 in former employment without receiving recompense. His claims were evidently recognised, for in 1607 he surveyed Windsor, issuing as the result a vellum folio MS. called "A Description of the Honor of Windsor, performed by the Perambulation and Delineation of J. Norden," containing eighteen coloured maps and bird's-eye plan. For this he received a free gift of £200 from King James I.

Later on he held the surveyorship of the Duchy of Cornwall jointly with his son. He was the delineator of the county maps engraved by William Kips, and his merits as a draughtsman were evidently recognised, as there are records of a Privy Council order to all lieutenants of counties "that the bearer, J. Norden, Gent, was authorised by his Majesty to travel through England and Wales to make more perfect descriptions, charts, maps, &c."

I now come to his book on surveying which contains a good deal of interesting material, and was well thought of at the time. It comprises six parts, each of which may be described as follows:

The first Booke

Containeth a communication betweene a Farmer and a Surveyor of Land ; wherein is proved that Surveyres of Manners and Lands are necessary, both for the Lord and Tennant, and in what manner Tennants ought to behave themselves towards their Lords, in respect of their tenures.

The second Booke

Is intreated betweene the Lord of a Mannor and a Surveyor, concerning the estate of a Mannor, of the parts and profits thereunto belonging, and how the Lord of a Mannor ought to deale with his Tennants.

The third Booke

Containeth the manner and method of keeping a court of survey, and the articles to be inquired of, and the charge ; how to enter and inroll copies, leases, and deedes, and how to take the plot of a mannor.

THE SURVEYORS DIALOGUE,

Very profitable for all men to peruse, but
especially for Gentlemen, Farmers, and Hus-
bandmen, that shall either haue occasion, or be wil-
ling to buy, hire, or sell Lands: As in the ready and perfect
Surveying of them, with the manner and Method of
keeping a Court of Suruey with many necessary rules,
and familiar Tables to that purpose.

As also,

The vse of the Manuring of some Grounds, fit as well
for LORDS, as for TENNANTS.

Now the third time Imprinted.

And by the same Author enlarged, and a farr Booke newly
added, of a familiar conference, betweene a PURCHASER,
and a SURVEYOR of Lands; of the true vse of both, being
very needfull for all such as are to purchase Land,
whether it be in Fee simple, or by Lease.

Divided into sixe Bookes by I. N.

PROV. 17. 2.

*A discrete Seruant shall haue rule ouer an vnchristie Sonne, and he shall
decide the heritage among the brethren.*

Voluntas pro facultate.

LONDON:

Printed by THOMAS SNODHAM, 1618. *y*

The fourth Booke

Sheweth the manner of the casting up of the quantities of acres of all sorts of grounds by the scale and compasse, with tales of computation, for ease in accompting.

The fift Booke

Sheweth the different natures of grounds, and whereunto they may be best imployed, how they may be bettered, reformed, and amended, fit for all farmers and husbandmen.

The Sixt Booke

Containeth a briefe conference between a Purchaser of Land and a Surveyor; wherein are some points necessary to be considered of such as are able and willing to Purchase Land in Fee-simple or by Lease.

He describes the meaning of the word manor and the history of manors, cottages, and villas, yeomen and vicars, meadows, rivers, and bournes, ironworks in Sussex, and many other points referring to both the holding of lands and the crops thereon.

He names as the best meadows in England those

Upon Dovebank in Tan Deane, upon Seaverne side, Allermore, the Lord's Meddow, in Crediton, and the meddows about the Welchpoole, and especially a meddow not farre from Salisburie neere a Bourne under the plaine, that bears grasse yearly aboue ten foot long; though many thinke it incredible, yet it is apparent that the grass is commonly sixteene foot long. It is made shorter before the cattle can feede on it, and when the cattle have fed their fill hogs are made fat with the remnant, namely with the knots and sappe of the grasse.

He speaks of a river near Chichester, in Sussex, called the Lauent (now known as the Lavant), which in the winter is dry, and in the dryest summer full to her banks; so is the Leam, a river in Barkshire, near Leambourne, and he says:

I take it to be because they are only fed with springs, which run only when they are at the highest, namely in the summer, when the sun is highest. And that also is the reason why many bournes breake out of the earth in sundry places, as we may read it hath done sometimes neere Mergate, in Hartfordshire, corruptly called Market, and neere Croydon, in Surrey, near Angleton and Patcham, in Sussex, and in many other places in this Realme: which breake forth suddenly out of the driest hill in summer, and run for a time in such abundance as would drive many mils. Not yearly, but in six, eight, or ten yeares.

On page 208 he recommends

Seed of the claver grasse or the grasse honeysuckle, and other seedes that fall out of the finest and purest hay; and in the wing of it, mingle with it some good earth. But sow not the honeysuckle grasse in too moist a ground, for it liketh it not, therefore you must draine the place before you sow it.

(This clover must be what is now known as cowgrass.)

He recommends hops from Essex and Surrey, and describes carrots as

A beneficial fruit as grown at Orford, Ipswich, and many sea townes in Suffolke, as also inland townes, Berrie, Framingham, and others in some measure in the same shire, Norwich, and many places in Norfolke, Colchester, in Essex, Fulham and other



*How to reduce all sorts of grounds into a square for the better
measuring of it.*

*From John Norden's "Surveyor's Dialogue," and also found in some copies of Gervase
Markham's "Country Farmer."*

places neere London. And it begins to increase in all places of this Realme, where discretion and industrie sway the minds of the inhabitants.

He calls the Kentish men

Most apt and industrious in planting Orchards with Pippins and Cherries, especially neere the Thames, about Feversham and Sittingbourne. And the order of their planting is such as the form delighteth the eye, the fruit the taste, and the walkes infinite recreate the body. Besides, the grass and herbage, notwithstanding the trees, yieldeth as much benefit, in manner, as if there were no trees planted at all, especially for hay.

He again refers to a place called Tan Deane, near Taunton, as the paradise of England, the land being so fruitful by nature as to make poor men live as well by a matter of twenty pounds per annum as he that hath an hundred pounds in some other parts, and he speaks of wheat giving from four to ten quarters per acre on the lands around Ilchester, Sutton, Somerton, Weston, Melton, and Falconbridge.

Regarding the derivation of the word manor, he says there is some difference of opinions :

It is in Latine called *manerium*, yet a word not used among the Romanes or ancient Latines, and therefore to finde the etimon by it cannot be ; for the word is used among our Lawyers, as many other made words are, which have beene terms raised by our Lawes, & are not elsewhere in use, and therefore the nearest way to find the signification of the word is by the quality of the thing ; so that some hold it should procede of the Latine verbe *manere*, which signifieth to abide or remaine in a place, as the Lord and his Tenants did in this, whereof the head house or the Lord's seat was called Berrye, which signifieth in the Saxon tongue a dwelling place, which continueth yet still in Hartfordshire and in divers other places, and is also taken sometimes *pro crasto*, which was also the seate of the Lord of some mannors. Mannor houses were also, and yet are called in some places Hals, as in Essex and northwards ; Courts and Court houses westward, as in Somerset, Devon, etc., as also mannor places ; all of which are places of the Lord's owne abode, and therefore it may not unfity be said to take the name of abiding or dwelling. Some thinke, and not improperly, that it taketh name of the French word *manemirer*, which signifieth to till and manure the ground ; and of the two, I take this latter to be the most proper derivation of the word mannor ; for thereof are many chief houses of tillage called *predia grannges* or *fermes* ; which word *farme* is taken of the Saxon word *fearnion*, which signifieth to feede or yeelde victuall ; for in ancient time their reservations were as well in victuall as in money, until at length they were turned into money ; and some *farme* rents doe yet continue in victuall. Furthermore, a mannor may take the name of *mainer*, to governe and guide, because the Lord of the Mannor had the managing and direction of all his Tennants within the limits of his jurisdiction.

He also states the quantity of land that should be held by the nobility in their different degrees, and he describes the meaning of the word ward, and the tenure of wardships.

The illustration on page 65 very curiously depicts the methods adopted for measuring land in his day. John Norden was also the author of several religious works.

SIR RICHARD WESTON.

1591-1652.

It has ever been acknowledged that Sir Richard Weston laid the foundation of the improved agriculture of Britain, and it is remarked in the "Philosophical Transactions" that England profited to the amount of many millions by following the recommendations given in his treatise. He was the eldest son of Sir Richard Weston, Kt., of Sutton, Surrey, and although I have not been able to trace the date of his birth, in 1613 he succeeded to his father's estates in the parishes of Sutton and Clandon, and was knighted at Guildford on July 27th, 1622. Some writers aver that he was ambassador from the Court of James I. to Frederic I., Elector Palatine and King of Bohemia, and that he was present at the famous battle of Prague. Be this as it may, he certainly wrote a treatise entitled "A Discourse of Husbandrie used in Brabant and Flanders," showing the wonderful improvement of law there, and "serving as a pattern for our practice in this Commonwealth." He never carried this valuable work beyond manuscript form, which he left with others as a legacy to his sons, but it came out as a book later, published by Samuel Hartlib, and its contents shall have due examination in our story of this author's life.

The improvement of husbandry was evidently a hobby of his, as he made many notable advances in the methods in vogue during his time. Sir Richard was the first to introduce the system of locks, as in Holland, to make rivers and canals navigable. He obtained powers from Parliament to make the river Wey navigable, the time given him being six months, but both this and the money, estimated at £6000, were exceeded, as he died in less than twelve months after the passing of the Act, having completed only ten miles of the fourteen miles necessary. After his death the work was carried on and completed by a Major Pitson and the son of Sir Richard, material and timber being granted from the King's estates of Oatlands and Richmond.

About the year 1638 he introduced into the county in which he resided the cultivation of "the grass called nonsuch" (really a clover now known as trefoil), and, following in the footsteps of Rowland Vaughan, he raised rich crops of hay from irrigated meadows, and in this connection Speed relates that Sir Richard told him in 1639 that he had disposed of 150 loads of his extraordinary hay at £3, which his meadows watered by his new river did yield. Another great improvement was his introduction of the rotation in crops founded on the cultivation of clover, flax, and turnips.

He married Grace, daughter of John Harper, of Cheshunt, and had by her seven sons and two daughters. He died in 1652, and was

buried in Trinity Chapel, Guildford. His legacy to his sons is dated 1645, and contains "precepts from a dying father instructing his children what he hath seen and known."



SAMUEL HARTLIB.

1600-1662 (*about*).

SAMUEL HARTLIB, who issued in book form the valuable manuscripts left by Sir Richard Weston, was in many ways a remarkable man, as he seems to have taken the fullest advantages of a period when English husbandry rose to a high state of perfection, and when landowners had discovered that the cultivation of their own estates were the very best posts of employment. He was born in Poland about 1600, and came to this country in 1628, starting in business nominally as a merchant, but in reality a man of various hobbies and conducting a great news agency, yet he must have had some knowledge of farming matters, as he was the supposed author of works on the subject, besides several theological tracts, and was the esteemed associate of the talented men of his time, including Milton, who dedicated to him his "Tractate on Education." He also assisted in establishing the embryo of the Royal Society. Hartlib would also seem to have been associated with many good people, for he speaks of his mother's sisters marrying the Lord Mayor's son and Sir Richard Smith, one of the King's Privy Council. Others of his relations married to Sir Edward Savage and Sir Anthony Irby, at Boston. His first work is said to have been published in England in 1637, and in 1645 he is stated to have first issued "A Discourse of Flanders Husbandry." In 1651 appeared his "Legacie," or an enlargement on the discourse. (See page 69.) He also wrote an "Essay on the Advancement of Husbandry and Learning, with Propositions for Erecting a College of Husbandry" (see page 75), and "The Reformed Husbandman." There (see page 77) also was issued between 1651 and 1655 "A Discovery for Division and Setting out of Waste Land in England and Ireland" and "The Complete Husbandman."

John Evelyn, the learned writer, mentions a visit to him in his diary, where he says, "This gentleman was master of innumerable curiosities and very communicative." It has been noticed that the discourse on Flemish husbandry was written by Sir Richard Weston, and details the practice of those places through which he had travelled, and the language employed shows a learned author, and the germs are evident of an improved agriculture.

The third edition of the "Legacie" forms an enlargement of the

SAMUEL HARTLIB

HIS

LEGACIE

OR

An Enlargement of the Discourse of

HUSBANDRY

USED IN

BRABANT and FLAUNDERS;

Wherein are bequeathed to the

COMMON-WEALTH of ENGLAND more

*Outlandish and Domestick Experiments and**Secrets in reference to Univerfall*

H U S B A N D R Y.

Psalmc 144. verse 13, 14, 15

*That our Garners may be full, affording all manner of store, that
our Sheep may bring forth thousands, and ten thousands in our Streets.**That our Oxen may be strong to labour, ——— that there be no com-
plaining in our Streets.**Happy is that People that is in such a Case: YEA, HAPPY is
that People whose God is the Lord.*

Psalmc 4. verse 8, 7.

*There be many that say: Who will shew us any Good? Lord, lift thou
up the light of thy Countenance upon us:**Thou hast put gladnesse in my heart, more then in the time, that
their Corne and their Wine increased.*

Entered according to the late Act concerning Printing.

LONDON, Printed by H. Hills, for Richard Wodenotbe at
the Star under St. Peters Church in Cornhill, 1651.

52 Waste Lands.

Some plants, as the *Orchis* call'd *Bee-flower* &c. which will thrive better on the *Chalky* barren banks, than in any garden, though the mould be never so rich and delicate, and the Gardiner very diligent in cherishing of it: and why may not the same propriety be in grasses? for we see *diverse* *benty* grasses to thrive, especially on barren places, where scarce any thing else will grow. I must againe and againe desire all men to take notice of the wonderful grasse which groweth neare *Salisbury*, and desire them to try it on their *Rich Meadows*.

11. *De-*
ficiency,
concern-
ing waste
lands. It's a common saying, that there are more waste lands in *England*, in these particulars, than in all *Europe* besides, considering the quantity of land. I dare not say this is true; but hope if it be so, that it will be mended. For of late much hath been done for the advancement of these kinds of land; yet there are as yet great *Deficiencies*. In the times of *Papistry*, all in this *Island* were either *Souldiers* or *Scholars*; *Scholars*, by reason of the great honours, priviledges, and profits, (the third part of the *Kingdome* belonging to them) and *Souldiers*, because of the many and great warres with *France*, *Scotland*, *Ireland*, *Wales*. And in those times *Gentlemen* thought it an honour to be carelesse, and to have *houses*, *furniture*, *diet*, *exercises*, *apparell*, &c. yea all things at home and abroad, *Souldier-like*: *Musick*, *Pictures*, *Perfumes*, *Sauces* (unlesse good stomacks) were counted, perhaps unjustly, too effeminate. In *Qu. Elizabeth's* dayes *Ingenuities*, *Curiosities*, and *Good Husbandry* began to take place, and then *Salt Marshes* began to be fenced from the Seas; and yet many were neglected, even to our dayes, as *Hollhaven* in *Essex*,

Waste Lands.

53

Essex, Axtel-holme Isle in *York-shire*: many 1000. of Acres have lately been gained from the Sea in *Lincolne-shire*, and as yet more are to be taken in there, and in other places. *Rumsey-marsh* in *Kent*, consisting of 45000. Acres and upwards, (as *Camden* relateth) is of some antiquity, where the land is usually let for 20. s. per Acre, and yet 1. d. per week constantly is pay'd, through the whole levell, for the maintenance of the wall, and now and then 2. d. whereas ordinary salts are accounted dear at 5. s. or 6. s. per Acre; so that the improvement is very considerable: the same I may say of *Fens*, especially that great *Fen* of *Lincolne-shire*, *Cambridge*, *Wingington* consisting as I am Informed of 28000. Acres, which is now almost recovered: and a friend of mine told me very lately, that he had purchased a marke per Acre; for 900. Acres together in *Low Rape* on, which formerly was scarcely worth 2. d. per Acre; very great therefore is the improvement of draining of lands, and our neglect is very great, that they have been waste to this day, and yet so continue in divers places: for the improving of a Kingdome is better than the obtaining a new one.

2. I see likewise no small faults in this land, by having so many *Chases* and *Forrests*, where *Woods*, *brakes*, *furzes* do grow, when as these commodities might be cut up, and pot-ashes made of them, and the ground improved profitably for Cattle, or Pasture. I know a *Forrest* by *Grill* in *Warrington-shire* taken in, and the land is usually let being now well enclosed, for 4. or 5. Nobles per Acre.

3. Sort of waste-land, is dry *barren* Commons.

former work, adding the best performances of English practice on the knowledge which the author either possessed or obtained. The work was only drawn up at his request, and, passing through his correction and revision, was published by him. The contents appear in the form of letters addressed to Mr. Hartlib, notably a lengthy communication filling some ninety-six pages, and signed Rob. Child, and Dr. Arnold Beati's Annotations, occupying 181 pages. The value of saintfoine, "which in English is as much to say as holy hay," is discussed, the author having seen it sown at Cobham Park, near Gravesend, on chalky banks, where nothing else would grow. He also recommends the growth of the great trefoil or clover grass, and the Parisian fodder, which they call La Lucerne, and he adds :

Though I cannot but very much commend these plans to my countrymen, knowing that they may be beneficial to this nation, yet I specially recommend them a famous kind of grass growing in Wiltshire, at Maddington, near Salisbury, which may better be called one of the wonders of the land.

He gives the botanical name of this grass as *Gramen caninum supinum longissimum*, "and which is 24ft. long, a thing most incredible, yet commonly known to that shire. Though some ingenious men have found about ninety species of grasses in this island, yet there is none like to this for height and sweetness."

I have found out that it is at Orcheston St. George and St. Mary, in Wilts, where these robust grasses are. A stream which flows down the valley in winter forms a broad, shallow stretch of water, which seems very favourable to the growth of this particular grass, no doubt on account of the nutriment brought down from the higher lands, where plenty of sheep are located. From a careful examination I take the grass to be a species of *Agrostis*, probably the variety *stolonifera*, which throws out stolons which I have seen more than a yard in length.

Here is a peculiar note from page 9, which, although it refers to market-gardening, is worth repeating :

About fifty years ago this art of gardening began to creep into England, into Sandwich, and Surrey, Fulham, and other places. Some old men in Surrey, where it flourisheth very much at present, report that they knew the first gardeners that came into those parts to plant cabbages, colliflowers, and to sow turneps, carrots, and parsnips, to sow raith (or early ripe) peas, all of which were at that time great rarities, we having few or none in England but what came from Holland and Flanders. These gardeners with much ado procured a plot of good ground, and gave no less than 8 pound per acre; yet the gentleman was not content, fearing they would spoile his ground because they used to dig it.

So ignorant were we of gardening in those days. On page 10 he adds :

Our husbandry is deficient in this, that we know not how to remedy the infirmities of our growing corn, especially smut and mildew, the one in wet years, the other in dry. A learned author saith that smuttiness in corn, which maketh it smell like a red herring, was not known in France until 1530.

THE REFORMED
HUSBAND-MAN.
OR A BRIEF
TREATISE
OF THE

Errors, Defects, and Inconveniences of
our ENGLISH Husbandry, in plough-
ing and sowing for Corn;

WITH

The Reasons and general Remedies; and a large,
yet faithful Offer or Undertaking for the benefit of
them that will join in this good and
publick Work:

Proposed some years ago by SAMUEL HARTLIB;

Author by him is imparted to all ingenious *English-men*,
that are willing to advance the Prosperity, Wealth, and
Plenty of their Native Countrey.

Isay 28. v. 24, 26.

*Will the Ploughman Plough all day to see? Doth he open and
cast the Glade of his ground?
Will the Sow sow without discretion, and doth teach him.*

LONDON, Printed by J. C. 1651.

How far, may I add, have we advanced in our knowledge in the subjugation of these fungoid diseases since the days of the writer, now 250 years ago?

Here is evidently the first experiment in the method known as alternate husbandry, or the sowing out of leys. On page 40 he says :

I know a gentleman who at my entreaty sowed with his oats, the bottome of his hay-mow, and though his land were worne out of heart, and naturally poor, yet he had that yeare not only a crop of oats, but he might, if it had pleased him, have mowen his grasse also, but he spared it, which was well done, till the next year, that it might make a Turffe and grow stronger.

He also observes that the yellow or hop trefoil grew naturally in Kent, and he speaks of three and twenty other sorts of trefoils. He refers on page 78 to "the ignorance that prevails about the grasses which naturally grow amongst us, and their uses, which likewise were made for to be food for cattel, and also for the service of man," and lays down lengthy rules for improving this want of knowledge. On page 89 he deplores the want of divers things which are necessary for the accomplishment of agriculture, "that we have not a system, or a compleat book on all the parts of agriculture," and he reckons all the authors before him went on probabilities and hearsays rather than experience.

In his day the city of London comprised 600,000 people (it is now over 4,000,000), 5000 quarters of wheat were wanted weekly, and he advocates "storehouses for holding six months' supplies for the people, likewise the same at York, Bristol, and Norwich, in case the magazines beyond the seas are locked up from us." He gives divers experiments wherein is shown how corn may be preserved in cheap years without corruption, so that it may supply the dearth when it cometh. He speaks of two sorts of saintfoine, one which endures for four years only, and the other which stands twelve to fifteen years. Can this be what we know as common and giant saintfoin?

Although made up of a mass of correspondence from many sources, this work was evidently thought a deal of, as Cromwell* (in 1647), gave Hartlib a pension of £100 per annum, afterwards increasing it to £300, to come out of Haberdashers' Hall.† In 1660 his pension was £700 in arrears, and in a letter to Lord Herbert he complains he had nothing to keep him alive.

On April 9th, 1662, he presented a petition to the House of Commons setting forth his services, and craving relief, in which he says *inter alia*,

that for thirty years and upwards he has exerted himself in procuring rare collections of MSS. in all parts of learning, which he had freely imported, transcribed, and printed,

* Jo. H. Com. 1644—1646, cp. 1. Vol. IV. folio, pages 587, 588.

† Jo. H. Com. Vol. V. folio, pages 131-2-3.

A N
 E S S A Y
 F O R
 A D V A N C E M E N T
 O F
 H u s b a n d r y - L e a r n i n g :
 O R
 P R O P O S I T I O N S
 F o r t h e E r e c t i n g a
 C O L L E D G E
 O F
 H U S B A N D R Y :
 A N D
 I n o r d e r t h e r e u n t o , f o r t h e t a k i n g i n o f
 P u p i l l s o r A p p r e n t i c e s .
 A N D A L S O
*F r i e n d s o r F e l l o w e s o f t h e s a m e C o l l e d g e
 o r S o c i e t y .*

L O N D O N ,
 P r i n t e d b y H e n r y H i l l s . 1 6 5 1 .

and sent to such as were most capable of using them; also the best experiments in husbandry.

The result of this petition is not known, neither is the place or date of his death.

"The Reformed Husbandman" (see page 73) was also issued in 1651, and is often found bound up with the "Legacie." It is a little work of some fourteen pages, and, as Hartlib announces, its contents were imparted to him by some of his correspondents.* In it is recommended industry as the grand prize of inventions, and the source of all rewards. The author urges the fallowing of lands for any crop, and the use of much less seed. In the "Essay on the Advancement of Husbandry Learning," Hartlib ascribes all misery to the narrowness of our spirits, and that our hearts are not enlarged beyond ourselves, and in order to rouse the upright in heart from laziness and drowsiness he states

that the mother of all other trades and scientific industries, which is the science and trade of husbandry, would be very beneficially treated in the collegiate way of teaching the art thereof, for if the least part of the industry is highly improved by collegiate institutions, the chief parts must be advanced to perfection by that means.

He proposes, then, "that there be bought or rented a large and convenient house with some good quantity of land adjoining and belonging to it," and that it be done "by those whose great wealth is joined with as great virtue and love to their country." He next suggests the fees, and how they should be paid, the ages of the apprentices in agriculture. This suggestion for an agricultural college must surely be the first ever introduced, but the idea does not seem to have been carried into practice until some centuries later; now we find them in full evidence all over the country. That Hartlib thought very deeply is shown by the projects which he formed and the recommendations he imparted, and this notice of him must not be closed without a parting expression of profound regret that the lofty minds which are excited by the prospect of future good, and rise above the general allurements of immediate advantage, should ever be subjected to the painful necessity of making petition for relief. Such occurrences have not been unfrequent in the history of the world, and afford ample evidence that there is something wanting in the moral condition of society that permits benefactors of the human race to be degraded in such a manner.

In 1865, "A Biographical Memoir of Samuel Hartlib," written by Mr. Henry Dircks, of Blackheath, was published in London by John

* One of his correspondents was Cressy Dymock, a member of a family of noted consequence in the pageantry of a Coronation, having by ancient right the privilege of serving as the King's Champion. He was a writer on agricultural topics, and author of the tracts, "A Discovery for Division or Setting out Land." "An Essay for Advancement of Husbandry Learning," "Invention of Engines of Motion." This latter tract is reprinted in Dirck's Life of Hartlib. London, 1865.

A DISCOVERIE

For Division or Setting out of Land,
as to the best Form.

Published by *Samuel Hartlib* Esquire, for
Direction and more Advantage and Profit of the Ad-
venturers and Planters in the *FENS* and other
Waste and undisposed Places in *England*
and *IRELAND*.

*Whereunto are added some other Choice
Secrets or Experiments of
Husbandry.*

With a Philosophical Quere concerning
the Cause of Fruitfulness.

AND

*An Essay to shew How all Lands may be
improved in a New Way to become the ground
of the increase of Trading and Revenue
to this Common-wealth.*

LONDON,

Printed for *Richard Wodensbein* in *Leaden-hall-Street*, 1651.

Russell Smith. It contains a full account of his life and his publications, and is written in the most eulogistic terms. He considered that "whether for the man of letters or of science, the politician or the theologian, the historian or the biographer, the life of a man like Samue Hartlib has many rare claims on human intelligence, sympathy, and respect."



GABRIEL PLATTES.

1600-1655 (*about*).

AFTER a period of devastation, when our fatal domestic wars changed the instruments of husbandry into martial weapons, the country found itself in a sad plight for the want of cheap food for an increasing population. Whenever a nation becomes populous, and the necessities of life are scarce and dear, it is then expedient to attempt the discovery of new improvements in husbandry, so that the community may be fed upon easy terms. Plausible theories upon such occasions amount to little more than ingenious amusements, and it is a series of skilfully conducted experiments that can alone establish matters of fact. In this connection it was remarked by that intelligent writer Gabriel Plattes, who may be considered as an original genius in husbandry, that "Reason had deceived him so many times that he would trust it no more unless the point in question be confirmed and made manifest by experience—without which no knowledge in husbandry is perfect, for experience admitteth no imposture." Such a frank and honest declaration aptly illustrates the feeling that had come over the land in relation to agriculture in his day.

In the meantime France had been making considerable efforts in reviving husbandry, attending more to the actual practice than the distribution of literature on the subject, so that whoever desired to employ their systems found it desirable to travel the country, and this several of the best men of the time did. The French system of "*petite culture*," which made a farm resemble a garden, did not, however, commend itself here, as the holdings were too large to manage with the spade alone, but when it was found they could get as great a return from ten acres as we could from forty it led to an improvement in our methods. Another secret spring that gave new motion to agriculture and preserved to us that superiority which, as foreigners say, "gave rise to the greatness, riches, and power of England," was the exportation of wheat, first allowed about the year 1661 under several restrictions, one of which was that no wheat should be permitted to go out of the country except it sold

A
DISCOVERY
 OF THE
TREASURE,
HIDDEN SINCE
THE VVORLDS
BEGINNING.

Whereunto all men, of what de-
 gree soever, are friendly invited
 to be sharers with the Dis-
 coverer, G. P.

Prov. 13. vers. 11.

*Wealth gotten by vanitie shall be diminished, but he that gathereth
 it by labour shall prosper.*

*Homo quando plus cognoscit & intelligit, & bonum profert actu,
 tanto Deo similior.*

LONDON,

Printed by I. L. and are to be sold by George Hutton,
 within the Turnstile in Holborne. 1639.

at home below the price of 24s. per quarter. And so popular was the innovation that the price soon rose to 48s. per quarter. At the same time a duty of 5s. 4d. per quarter was laid upon imported wheat, and this duty was advanced in 1670 to 16s., a figure which in effect amounted to a prohibition. These prudent measures gave great satisfaction. The average price of wheat, according to Rogers, was 41s. 11½d. per quarter from 1660 to 1700.

With the issue of these improved works on agriculture, the cultivation of the soil began now to interest persons of education, and the art was no longer treated as a mere mechanical one, and as many of our present systems found their beginning between the years 1640 and 1670, the era is a remarkable one in the progress of agricultural science. At the time of these authors the greater part of the land was in open fields, some few of them separated only by a baulk and having one common road leading to them.

It will be seen how difficult it was to keep stock in such unrestricted areas, or even to move them about without injuring the crops, and it was the evil arising from this "entanglement" of land, as one writer calls it, that brought about a general inclosure Act later on. It is very interesting at this moment to look into the origin of fields and commons, and the measures that have become law at various times regarding the inclosure of land. The subject has been discoursed upon by many of these old writers, and comes quite within the scope of our deliberations.

The original holding of lands was by tribes or clans—a collective holding with no personal proprietorship. Personal ownership was probably introduced during the partial and temporary occupation by the Romans, but reverted to the former method on their withdrawal. In the later Saxon period there is no doubt private ownership became more extended, and was much increased after the Norman Conquest, when William I. claimed immense tracts, confiscated from the so-called rebels, and granted them to his followers as lordships, and when law began to form a system, the early Norman lawyers laid this as their basis. These lords took small care of the outlying, uncultivated, and waste lands, which still were used as common lands.

From the Conquest the townships or villages and hamlets had round them great ploughed fields, usually three in number, that were tilled on a system of rotation of crops, each field in turn lying fallow for a year, during which it was open or common to all the holders of land in the fields, while the two fields under cultivation were open from the time of harvest till the corn was sown again. These fields were under a system of common ploughing, each holder of land supplying so many oxen, two being the contribution of each holder of a virgate=thirty acres, eight being the normal number to a plough.

The normal measures of land were : A hide=120 acres ; carucate=120 acres, from *caruca*, Latin=plough or plough team (or land of a

plough team); virgate=30 acres, or one man's holding. As the population increased these lands were naturally continually encroached on and inclosed by the large holders, and the action taken seems to have caused no particular complaint or hardship so long as the quantity of land amply supplied the wants of all. The agitation against the inclosure for private ownership and use became first an important subject in the fourteenth century, when an extending demand for English wool induced the large owners to commence inclosing immense tracts of what had been until then common lands, and evicting numbers of the cultivating tenants at will, and small squatters, and substituting pasturage for tillage.

This system of large holdings was advocated by both Fitzherbert and Tusser (writers whose careers have been dealt with in these pages). Inclosures had been made and allowed since the reigns of Henry III. and Edward II., with the limitation of leaving sufficient for those who had right of common, and some unpopular actions in this direction were the principal causes of Jack Cade's rebellion about 1450. About a hundred years later a similar rebellion was caused through the inclosure of land brought about by the dissolution of the monasteries in the reign of Henry VIII., the abbey lands being transferred and given to lay owners, who proved not nearly such easy landlords as the monks. With the increase in population the cultivation of land was becoming more of a commercial consideration, and a new kind of landholder was arising, governed by a more commercial instinct, "men who were permitted to inclose under certain conditions not more than sixty acres, or one-sixth of the waste of the manor, which ever should be best for the benefit of poor ministers. A great movement took place in favour of inclosures in the last part of the eighteenth and first part of the nineteenth century; it was a movement to get rid of common fields, and to inclose wastes and common lands.

In 1760, before the tide of inclosures as understood to-day had begun to set in, a large portion of the land was in common fields, each village or town having sometimes two or four, but usually three, broad strips of grass, divided by landmarks called headlands and baulks of turf into narrow parallel strips, divided amongst the inhabitants. These fields could only be tilled on a customary system of agriculture, and were subject to customary rights of fallow and common pasture. The reports of the Board of Agriculture a few years later greatly strengthened this movement.

About this period very many Inclosure Acts were laid before Parliament, but these private Acts were very inconvenient, as four-fifths of those having common right had to consent before the inclosure was sanctioned. The report of the Committee of Agriculture in 1794 suggested a general bill for inclosures; Parliament was approached, but the bill thrown out. Subsequently it was revived, passed by the Commons, but

let him hazard a good wager upon it, which shall be equalized, and the question shall be determined by the greatest, viz. experience which admitteth no imposture, yet I could advise my best friends that love to trie experience, to spend their money, time, and studie upon Improvements in Husbandrie, being workes more certaine, and more profitable.

We must needs confesse that barrennesse increaseth by the usuall practice in Husbandry at this day, and by the wayes alledged by you in your Booke, viz. first, by the carrying of the sheepe from the Commons with their full bellies into the Folds, whereby the one ground is impoverish'd to enrich the other; and this we conceive may be cured by your new Inventions, for providing of manure which was neglected before: secondly, the Land is much impoverish'd by great Land-floods, which carry a wonderfull quantitie of fertility yearly into the Sea, but how this should be remedied we know not. We must needs confesse that your Inventions for the providing of manure more then before are excellent good, and profitable for the generall good, and will diminish the barrennesse much, so that it will not increase so fast as it did before, yet it will continue that barrennesse will still increase, though more slowly, for all your multiplications of manure will not equalize, much less overcome the fertilitye burned yearly by Land-floods into the Sea.

Answer.

b. 2. c. 3. d. 4.

and thereby the earth shall be made
 fruitful, and the husbandman shall be
 able to bring forth much more fruit, than
 he is able to do now. It is certain that the new provision of manure
 by lime, ashes, Marle, dung, and condensed
 water, and by the rest of the inventions, will equal-
 lize and overmatch the great quantitie of fæment
 carried yearly into the Sea; if the Earth shall be in-
 dustriously purged of the subterraneall vapours
 yearly elevate, a great quantitie of fatnesse
 though in some places more abundantly than in o-
 thers; for I have knowne a barren land bring forth
 corne time out of minde, with every third yeare
 rest and fallowing, without any manure at all; but
 onely by this subterraneall vapour arising from
 some subterraneall fat substance: but though this
 be but in some speciall places, yet it is a great con-
 fession but that it helpeth well in all places, though
 of it selfe it be not sufficient without addition of
 manure; but if all men would be ruled by me, we
 would not onely put these workes in practice very
 industriously for the generall good, thereby to re-
 stifie our love to all men both living, and yet to
 come; but also we would make use of my first In-
 vention mentioned in my first Chapter, viz. to bow
 the knee of the heart, instead of the usual and com-
 plementall bowing of the knee of the body, to the
 Donor of all goodnesse, then might we have firme
 confidence, having formerly testified our love to
 God, by the generall love of all his creatures, espe-
 cially those of our own kind, that he would send the
 former and the latter raine in due season, without
 scanting

thrown out by the Lords; but in 1801 they were partially successful, and the first general Act for inclosure was passed, being "an Act for consolidating in one Act provisions usually inserted in Acts of inclosure."

In 1845 a General Inclosure Act was passed which appointed an Inclosure Commission, The lands that might be inclosed were: (1) those that might be inclosed without intervention of Parliament; (2) lands that could not be inclosed by the commissioners without the previous consent, including all lands over which rights of common existed, all waste land of manors over which tenants had right of common, also all wastes within fifteen miles of London or other towns, distances varying according to number of inhabitants; (3) all town and village greens were excepted by this Act. Gabriel Plattes has a good deal to say on this subject in his book entitled:

"Practical Husbandry Improved; or, A Discovery of Hidden Treasure, Hidden since the World's beginning," whereunto All Men of What Degree Soever, are friendly invited to bee Sharers with the Discoverer, written by Gabriel Plattes, and now published for the Generall Good and Benefit of the Commonwealth. London, Printed for Edward Thomas, and are to bee sold at his House in Green Arbor.

By the known times of his life and death, it is pretty certain he began his observations at the end of Queen Elizabeth's reign, and continued them through the reigns of James I. and Charles I., and also during a few years of the Commonwealth. He was the author of several books, yet he was allowed to die of hunger in the streets of London.

Little seems known about Sylvanus Taylor, beyond the fact that he was the author of the work described in the illustration on opposite page.



GERVASE MARKHAM.

1568-1637.

A GREAT many works on agriculture appeared in the early part of the seventeenth century, some of them very heterogeneous performances. yet withal containing many judicious directions and a good deal of rash speculation. He who wishes to view the condition of those engaged in the pursuit during this period, as well as the cultivator who still obstinately resists every new practice, may be gratified in tracing the gradual progress of improvement, which included the introduction of clover and turnips into England, of hedges into Scotland and Ireland, and the execution of extensive embankments and drainages. As the industry advanced, one point is very noticeable in these books of instruction, and that is in the directions, which are more systematically arranged

Common-Good:
 OR, THE
IMPROVEMENT
 OF
 Commons, Forrests, and Chases,
 BY
INCLOSURE.

WHEREIN
 The Advantage of the Poor,
 THE
 Common Plenty of All,
 . AND .
 The Increase and Preservation of
 T I M B E R ,
 With other things of common concernment,
 Are Considered.

By S. T.

L O N D O N ,
 Printed for Francis Tyton, and are to be sold at his
 Shop at the sign of the three Daggers near the
 Middle Temple gate, 1652.

the different operations of the farmer being noted with better care and correctness.

The name of Markham is always put forth as that of a leading author in the history of British agriculture. Being an educated man, he was qualified to take a comprehensive view of the subject, and to range it beyond the narrower sphere of those writers who preceded him. He lived in the commencement of much civil commotion, but did not see the fruits of the agitation; his was a generation that did not grasp readily the vast influx of altered knowledge which burst upon every department of employment from foreign intercourse and the enlargement of the human mind from the spread of education; yet Markham himself seemed in this direction to be in advance of his time.

This ancient family trace their pedigree to a period before the Norman Conquest, and the present representative is well known not only as a doyen amongst Arctic explorers, but as president of the Royal Geographical Society and author of several very useful literary works.

Gervase Markham appears to have been born in 1568 on the estate of his father at Cotham, near Newark, in Nottinghamshire, and, although unendowed with great wealth, he was given a good schooling, and became not only an excellent classical scholar, but well conversant with the leading foreign languages, an advantage which enabled him to prosper in the world and to become one of the chief worthies in a family rich in clever men. He bore a commission in the army of King Charles I. during the Civil Wars, serving under the Earl of Essex in Holland and also in Ireland, and was accounted a good soldier. Fighting, however, does not appear to have been his forte, but there is no doubt that during his travels he was a keen observer of Nature, as he became a very voluminous writer.

Beyond this fact his life was uneventful, being such as is the usual career of a man whose breadwinner is his pen. His works show that he delighted in masculine sports, was a gallant courtier, a practical husbandman, and an authority upon horses; his knowledge of this animal led him to be employed by James I. to obtain for his Majesty a pure bred Arab charger, which he imported from the East, and obtained for it the handsome sum in those days of £500.

Whilst in the service of the State as a yeoman, it is on record that on mustering forces at Eagle Hall, Lincolnshire, for Charles I., it was observed that Gervase Markham was mounted on the best horse. He was married, but had no children, and died on February 3rd, 1637, according to our present day calendar, and was buried at St. Giles, Cripplegate, London, where his remains rest in company with those of such celebrated men as Milton, Fox, Frobisher, and Speed.

Markham was able to write as well in verse as in prose, and did not confine his productions to agriculture alone, for his name is attached to

Maison Rustique,
Or,
**THE COUNTRY
FARME.**

Compyled in the French Tongue by

CHARLES STEVENS, and JOHN

LIEBAULT, Doctors of Physicke.

And translated into English by RICHARD

SURFLET, Prastitioner in Physicke.

Now newly Reviewed, Corrected, and Augmented
with diuers large Additions, out of the

Works of { SERRES his Agriculture, } French.
VINET his *Maison Champestre*,
ALEXYTRIO in Spanish,
GRILLI in Italian; and other Authors.

And the Husbandrie of France, Italie, and Spaine, reconciled
and made to agree with ours here in England:

By GERVASE MARKHAM

The whole Contents are in the Page following.



LONDON,

Printed by *Adam Iſſip* for *Iohn Bill*.

1616.

See page 90.

tragedies, comedies, and other heroic poems, many of which are now rare, and command large sums of money when offered for sale. In 1599 he issued a book on our subject, entitled "How to Chuse, Ride, Train, and Diet both Hunting Horses and Running Horses." It is dedicated to "his singular good father, Ma: Robert Markham, of Cotham, in the countie of Nottingham, Esquire." In it he states he has here "gathered together of my life's experience," and that "no man's aplaus can better please me," for his father was as fond of horses as himself, and it so fell out that Cotham, his chief manor, became the property of the Duke of Newcastle, and still belongs to his Grace's family.

Most of his earlier books on agriculture and subjects pertaining thereto appear to have consisted of bringing up to date the works of earlier writers. "The Gentleman's Academie; or, the Booke of St. Albans on Hawking, Hunting, and Armorie," compiled by Juliana Berners in 1486, now reduced to a better method by G. M., he dedicated to the gentlemen of England, and all the good fellowship of huntsmen and falconers.

In 1607 was first issued

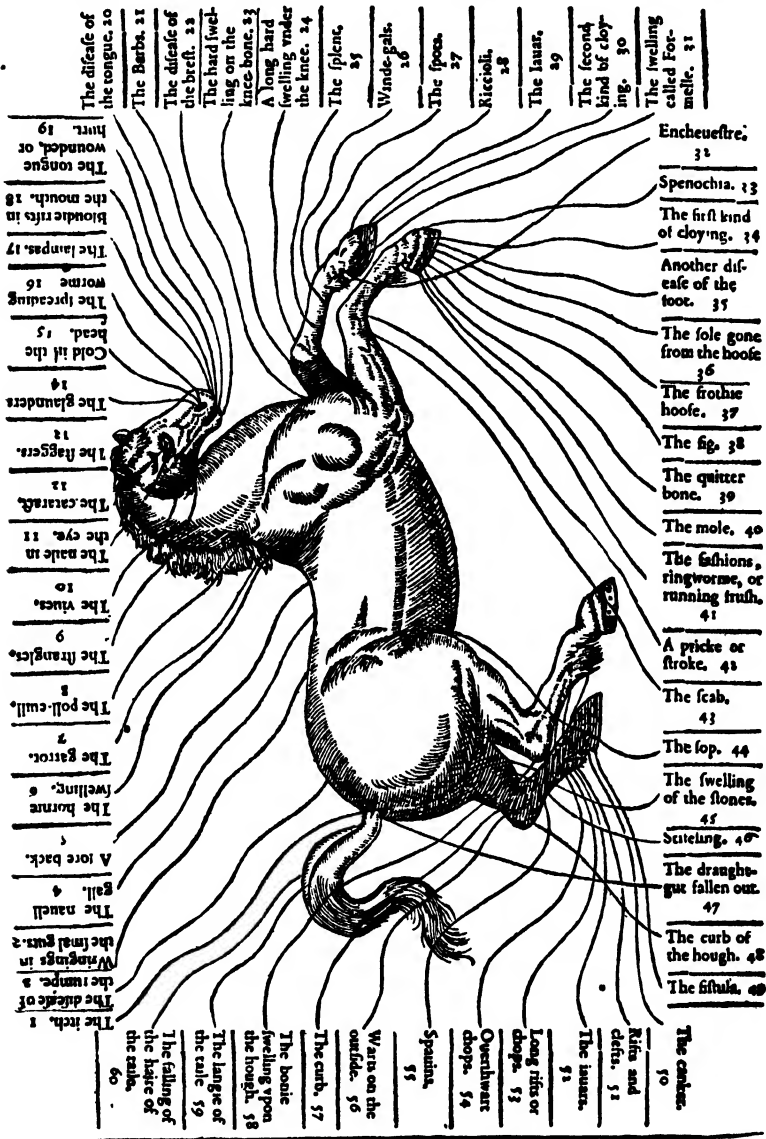
Cavelarice; or, The English Horseman, contayning all the Arte of Horsemanship, as much as is necessary for any man to understand, whether he be Horse-breeder, horse-ryder, horse-hunter, horse-runner, horse-ambler, horse-farrier, horse-keeper, Coachman, Smith, or Sadler; together with Discouery of the subtile trade or mistery of horse-coursers, and an explanation of the excellency of a horses understanding, or how to teach them to doe trickes like Bankes his Curtall; and that horses may be made to drawe drie-foot like a Hound. Secrets before vnpublished and now carefully set down for the profit of this whole Nation, by Geruase Markham. London: Printed for Edward White, and are to be solde at his shop near the little north doore of Saint Pauls Church at the signe of the Gun.

In 1608 appeared

The Husbandman's Faithfull Orchard, shewing divers rare new secretes for the true ordering of all sortes of fruite in their due seasons.

The Whole Art of Husbandry, contained in Fovre Bookes, viz.: I. Of the Farme or Mansion House, Offices and Accommodations of Earable Ground, Pasture and Medowe. II. Of Gardens, Orchards and Woods. III. Of Breeding, Feeding, and Curing of all manner of Cattell. IIII. Of Poultrie, Fowle, Fishe, and Bees, with the whole Art (according to these last times) of Breeding and Dyeting the Fighting Cock, and the Art of Angling, first written by Conrade Heresbatch, a learned Nobleman, then translated by Barnaby Googe, Esquire, and now Renewed, Corrected, and Enlarged, and adorned with all the Experiments and practises of our English Nation, which were wanting in the Former Editions. By Captain Gervase Markham. 1614. London: Printed by T. C. for Richard More, and are to be sold at his shop in S. Dunstanes Church yard in Fleet-street.

"Cheape and Good Husbandry" (see page 91). First issued in 1614. This book ran through over a dozen editions during the century. My copy is dedicated to the Right Honourable and most truly ennobled



The stricken eye.

The bleared eye.

The stricken eye is cured by applying vnto it a cataplasme made of bread crums steeped in coole water, or bread roasted and steeped in white wine: if this doe no good, you must open the head veine.

The bleared eye is cured by an eye-salue made with frankincense, myrrhe, starch, and fine bonie: as also by a troicket made of frankincense & maffick finely powdered and

with all inward and outward vertues Richard Sackville Baron of Buckhurst and Earle of Dorset.

In 1616 appeared the revised edition of the celebrated

Maison Rustique, or the Countrey Farme, compiled by Charles Stevens and John Liebault, Doctors of Physicke, and translated into English by Richard Surfleet, now newly reviewed, corrected, and augmented, with divers large additions, out of the works of Serres, his *Agriculture*, *Vinet*, his *Maison Champestrie*, *Albyterio*, in Spanish, *Grilli*, in Italian, and other Authors. And the Husbandry of France, Italy, and Spaine, reconciled and made to agree with ours here in England, by Gervase Markham, the whole contents are in the page following. London, by Adam Islip for John Bill (see page 87).

The original translation from the French by Richard Surfleet was dedicated to the Right Hon. Sir Peregrine Bartie, Knight, Lord Willoughby, Baron of Willoughbie and Eresbie, Lord Governor of Her Majesties Towne of Barwicke, and Lord Warden of the East Marches; whilst Markham's edition is dedicated to this nobleman's son, Lord Roberts.

In 1611 appeared the first edition of

Country Contentments; or, *The Husbandman's Recreations*, containing the wholesome experience, in which any ought to recreate himself, after the toyl of more serious business, as namely, Hunting, Hawking, Coursing with Greyhounds, and the Lawes of the Leash, Shooting in Long-bowe or Cross-bowe, Bowling, Tennis, Balloon, the Whole Art of Angling, and the Use of the Fighting Cocke, of which the eleventh edition, issued in 1675, was printed for George Sawbridge, at the sign of the Bible on Ludgate Hill. Eleven other editions appeared between this date and 1675.

Then came

Markham's *Maister-Peece*, containing all Knowledge belonging to the Smith, Farrier, or Horse-leech, touching the Curing of all Diseases in Horses, drawne with great paine, and most approved experience, from the publick practice of all the Forraigne Horse-Marshals in Christendome; and from the private practise of all the best Farriers of this Land; being divided into two Bookes; the First containing all Cures Physicall, the second all belonging to Chyrurgery; with an addition of 160 principall Chapters, and 370 most excellent Medicines, never written of nor mentioned in any Authour whatsoever; together with the true Nature, Use, and Quality of every simple Remedy spoken of through the whole worke. Written by Gervase Markham, Gent. The Second Booke: Containing all Cures Chyrurgicall, or such infirmities as being only outward, crave the use of Chirurgery, and are called in Horse-leechcraft, Horse Sorrances.

And

The English Husbandman, drawne into Two Bookes, and each Booke into Two Parts. The First Part containyng the Knowledge of Husbandry Duties, the Nature of all Sorts of Soiles within this Kingdome, the Manner of Tillage, the diversity of Ploughes, and all other Instruments. The Second Part Contaynyng the Art of Planting, Grafting, and Gardening, the Vse of the Vine, the Hopgarden, and the preservation of all Sorts of Fruits, the Draught of all sorts of Knots, Mazes, and other Ornaments. London: Printed for Henry Taunton, and are to be sold at his Shop in Saint Dunstons Churchyard in Fleet Street.

Cheape and Good
HVSBANDRY

For the well-Ordering of all
 Beasts, and Fowles, and for the
 generall Cure of their Diseases.

Contayning the Natures, Breeding, Choise, Vse, Feeding,
 and Curing of the diseases of all manner of Cattell, as *Horse,*
Oxe, Cow, Sheepe, Goates, Swine, and tame-Comes.

Shewing further, the whole Art of Riding great-Horses, with the
 breaking and ordering of them : and the dieting of the Running,
 Hunting, and Ambling Horse, and the manner how
 to vse them in their trauaile.

Also, approued Rules, for the Cramming and Fattning of all sorts of
Poultry and Fowles, both tame and wilde, &c. And diuers good and,
well-approued Medicines, for the Cure of all the diseases
in Hawkes, of what kinde soeuer.

Together with the Vse and Profit of Bees : the making of Fish-ponds,
 and the taking of all sorts of Fish.

Gathered together for the generall good and profit of this whole
 Realme, by exact and assured experience from English practises,
both certaine, easie, and cheape : differing from all former and
 forraigne experiments, which cyther agreed not with
 our Clime, or were too hard to come by,
 orouer-costly, and to little purpose : all
 which herein are auoyded.

The third Edition.

LONDON:

Printed by T.S. for Roger Iackson, and are to be sold at his Shop
 neere the Conduit in Fleetstreet. 1623.

In 1623 was issued an edition—whether the first or not I am not sure—"The Country Housewife's Garden." Of its contents it will suffice to quote: "In the month of Aprill, the moone being new, sow Marjoram: in the full of the Moone Apples of Love."

"Markham's Farewell to Husbandry." (See opposite page.) My copy is addressed to the "Right Worshipfull and his most worthy Friend, Mr. Bonham Norton, Esquire."

In 1625 appeared "Inrichment of the Weald of Kent," a booklet which seems from the dedication to a Kentish Landed Proprietor to have been written especially at his instigation. This work is addressed to the Honourable Knight Sir George Rivers, of Chafford, in the County of Kent, and issued by R. Jackson. (See page 94.)

The Art of Archerie, shewing how it is most necessary in these times for this Kingdom, both in Peace and War, and how it may be done without charge to the country, trouble to the People, or any hinderance to necessary occasions, also of the Discipline, the Postures, and whatsoever else is necessary for attaining to the Art, London: Printed by B. A. and T. F. for Ben Fisher, and are to be sold at his shop at the signe of the Talbot without Aldersgate, 1634.

In 1635 another work of his on fishing is entitled:

The Pleasures of Princes, or Good Men's Recreations, containing a Discourse of the Generall Art of Fishing with the Angle or otherwise, and of all the hidden secrets belonging thereunto. Issued by John Norton.

So much were his writings in demand, and so many books relative to the same subject did he compose, that at last he arranged with his publishers to write no more, and the following agreement was drawn up:

Mem.—That I, Gervase Markham, of London, gent., do promise hereafter never to write any more book or bookes to be printed of the diseases of any cattle, horse, ox or cow, sheep, swine, or goats. In witness whereof I have hereunto set my hand the 24th daie of July, 1617.—GERVASE MARKHAM.

This memorandum has been said to be in the archives of the Stationers' Company, but I believe it is not now forthcoming. The following entry, however, in their books shows that the publishers of those days had contentions about his published works:

August, 1617.—The Court issued an order to settle the controversie between Roger Jackson and John Mariot for the printinge of the booke called "Markham's Farewell to Horsmanshippe and Husbandry."

Although he drew upon earlier writers for some of his material, the prefaces and deductions of his many works afford satisfactory testimony that he was a well-meaning man, and, to use his own words, he says, "Patience I have long since made mine owne and only companion."

To give some idea of his style I have culled the following extracts

MARKHAMS

Farewell to

HUSBANDRY:

OR,

The Enriching of all sorts of Barren and Steril grounds in our Kingdome, to be as fruitfull in all manner of Graine, Pulse, and Grasse, as the best grounds whatsoever.

Together with the annoyances, and preservation of all Graine and Seed, from one yeare to many yeares.

As also a Husbandly computation of men and Cattels daily labours, their expences, charges, and utmost profits.

The fourth time, revised, corrected, and amended, together with many new Additions, and cheape experiments:

For the bettering of arable Pasture, and wooddy Grounds. Of making good all grounds againe, spoiled with overflowing of salt water by Sea-breaches: as also, the Enriching of the Hop-garden, and many other things never published before.

L O N D O N,

Printed by EDWARD GRIFFIN for JOHN HARRISON,
at the signe of the golden Vnicorne in Pater-noster-
row. 1638.

THE INRICHMENT of the Weald of Kent:

OR,

*A Direction to the Husband-man, for
the true ordering, manuring, and enriching
of all the Grounds within the Wealds of
Kent and Suffex, and may generally
serue for all the Grounds in England,
of that nature: As,*

1. *Shewing the nature of all Wealdish grounds, comparing it with
the soile of the Shires at large.*
2. *Declaring what the Marle is, and the severall sorts thereof,
and where it is vsually found.*
3. *The profitable use of Marle, and other rich manurings, as well
in each sort of arable land, as also for the increase of Corne and
Pasture through the Kingdome.*

*Painfully gathered for the good of this Iland, by a man of
great eminence and worth, but revised, enlarged, and
corrected with the consent, and by conference with
the first Author. By Gervase Markham.*



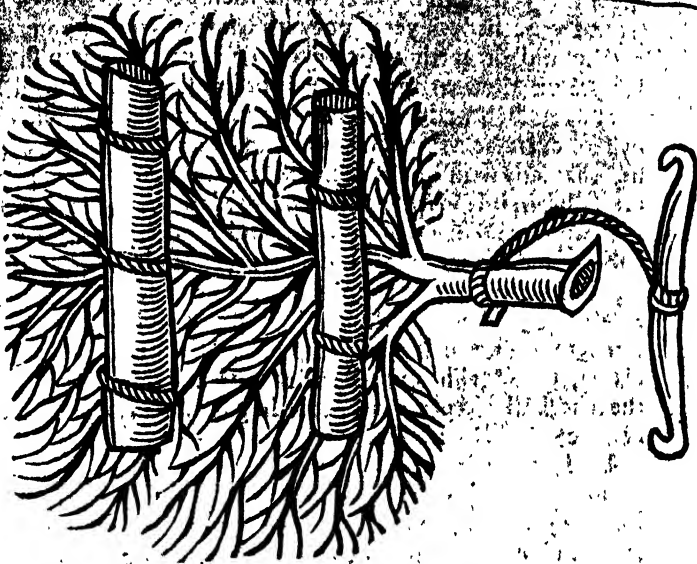
LONDON,

Printed by Anne Griffin for Iohn Harrison, at the
golden Unicorn in Paternoster-row. 1636.

Book.

A new way of Harrowing.

61



To the big end of this harrow, you shall fixe a strong rope with a Swingle-tree with Treats, Coller, and Harnesse, and one Horse is fully sufficient to draw it round about the Pasture or Meadows: so with this Harrow you shall harrow the ground all over, and it will not onely break all the hard clots to a very fine dust, but also disperse them and drive them into the ground, and give such a comfort to the tender roots of the young grasse, then newly springing, that it will double and treble the increase. And for mine own part; this experience I my self have seen upon an excreame barren Pasture ground in Middlesex, where none of these good moulds or soyles could be got; but this Husbandman was faine to take all the rubbish & coarse earth even to the very sweepings of his yard, and for want of enough thereof, to take any ordinary earth he could get and with it he dressed the ground in such sort as I have now last shewed you, and this being done in April, he had in June following as good Meadow as could bee wisht for, and was the first Meadow I saw cut downe in all that Country: from whence I draw

M 2

from copies of various books in my possession. On page 136 of the "Countrey Farme" he says :

You shall take it for the best and principallest note of a good horse if he have an Ostridge Feather on each side his crest, for they are of excellent endurance, and will seldom or never reyre (rear). Againe to have the neere foot white behind, the farre foot white before, to have both foot white behind, or both feet white on either side, are



Title page and Frontispiece of one of Gervase Markham's publications.

all approved marks of a verie good Horse, provided that all such whites be under the pasterne; for to have them higher is a signe of an arrand Jade. Also to have a white starre in the forehead, a white rache down the face, or a white stripe on the nose are marks of a good Horse; provided that the starre be not artificiall, the rache too broad, enclining to baldnesse, nor the snip raw; all which are evill signes. Also a little foot is a signe of swiftnesse, a thinne haire a signe of mettall, a loose throppell a signe of much wind, and a short well knit and upright pasterne, a signe of strength and great endurance.

WALTER BLITH.

1620-1690 (*about*).

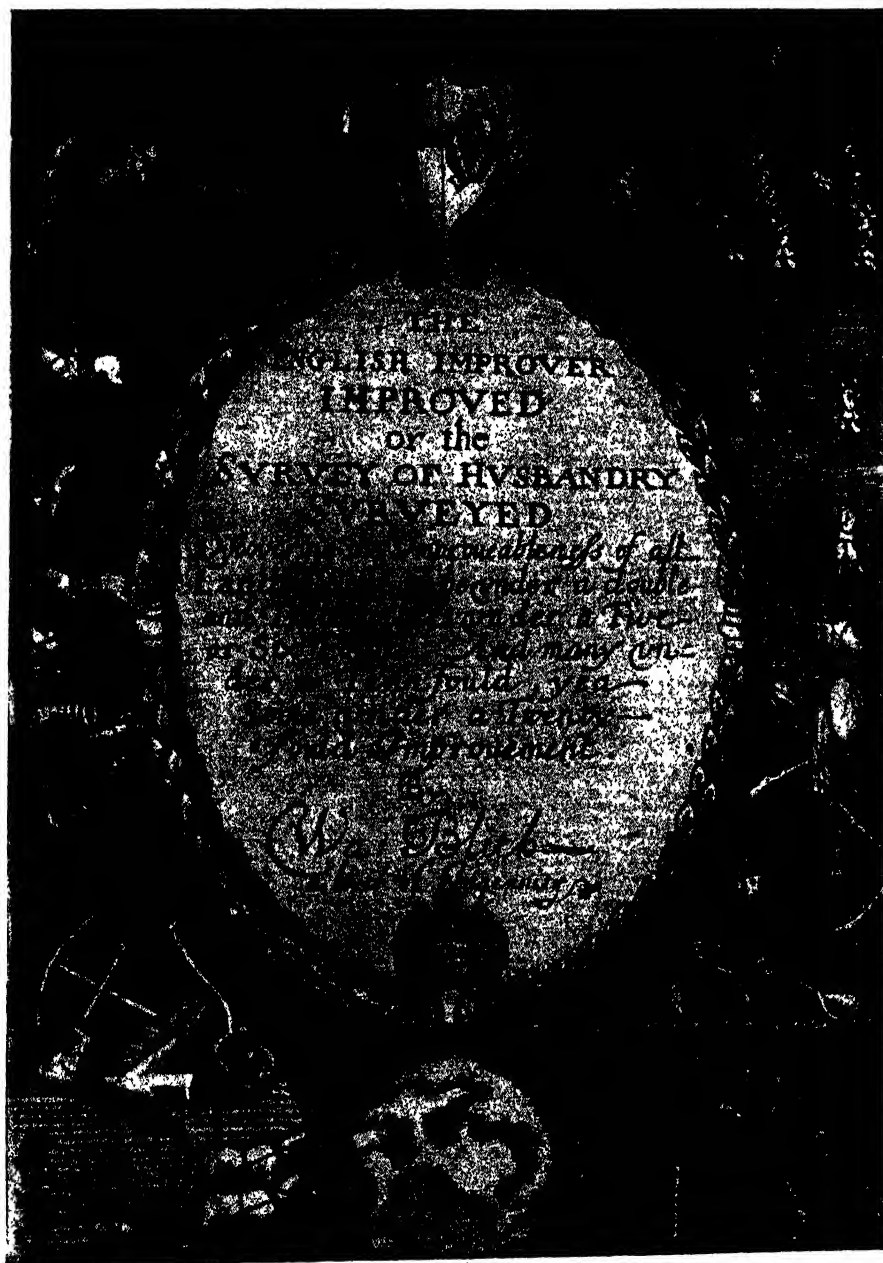
THE change of government introduced by the Commonwealth brought forward upon the stage of life many eminent characters who but for the alteration would probably never have been heard of, and whatever opinions may be formed of that method of rule as applied to this country, no denial can be made that it met a need at the time, and was favourable in a high degree to the development of genius and enterprise. It acted as a social commotion which moved the stagnation of the human mind and put into motion the wheels of action that had stood still for the want of impulse towards progression. Walter Blith appears to have been a landlord in Yorkshire, and acted in a military capacity as a captain in Cromwell's army in Ireland. Canon Hart says*:

Ireland, it must be confessed, had a wretched method of husbandry, and strong prejudices in behalf of that method till about 1650, when Blith alone, who then lived in Ireland, was sufficient to open men's eyes by his incomparable writings. But the truth is that he and many other English officers and soldiers of Cromwell's army, being enriched by military grants and settlements, first laid the right foundations of husbandry in that kingdom.

His writings touch every branch of the industry, and he seems to have entertained the first systematic conceptions of the benefits that would attend the "alternate husbandry." He recommends the breaking up of all inferior grass lands, and shows the public loss from constant pasturage. The wearing out of land by too constant ploughing is much condemned and the want stated of a renovating pasturage. He describes and figures the sowing and wheel ploughs and the double implement with two mould boards, and notices the turnwrest plough of Kent. He appears also to have known the drill plough, and says expressly that "it ploughed, sowed, and harrowed at one and the same time, and is largely used in Norfolk." He also recommends many green fodder plants, which, along with root crops, effected a complete revolution in the cultivation of the soil in his day.

His first book is entitled "The English Improver; or, a New Survey of Husbandry," in six chapters, making 168 pages. It is addressed "To those of the High and Honourable Houses of Parliament whose vacancies from the great Businesse of the Kingdom will admit the reading," and printed in London for J. Wright at the King's Head in the Old Bailey, 1649. In 1652 there appeared "The English Improver, Improved," of which the frontispiece and title-page are reproduced on pages 98 and 99. This book is addressed to the Right Honourable the Lord Generall Cromwell and the Right Honourable the Lord President and the rest of

* "Essays on Husbandry," 1767.



From Walter Blith's "English Improver Improved." 1652. See page 97.

clearly demonstrated from Principles of Reason, Ingenuity, and late but most R. Experiences; and held forth at an Inconsiderable charge to the Profit arising thereby, under
Six Peeces of Improvement.

- 1 By Floating and Watering such Land as lieth capable thereof.
- 2 By Draining Fen, Reducing Bog, and Regaining Sea Land.
- 3 By such Enclosures as prevents Depopulation, and increases the Number of Inhabitants.
- 4 By Tillage of some Land lost for want of, and Pasturing enclosed with Plowing.
- 5 By a Discovery of all Soyls and Composts with their several Uses.
- 6 By doubling the growth of Wood by a new Plantation.

The Third Impression much Augmented

With an Additionall Discovery of the severall Tables and Instruments in their Forms and Figures promised.

With a Second Part; Containing

Six Newer Peeces of Improvement.

- 1 Our English Husbandring Claver, and St. Foyn, as high as may be.
 - 2 The facilitating the charge and burthen of the Plough, with the Figures thereof.
 - 3 The Planting Welds, Woode, and Madder, three rich commodities.
 - 4 The Planting of Hops, Saffron and Liquorish, with their Advantages.
 - 5 The Planting of Rape, Cole-seed, Hemp, & Flax, and the profit thereof.
 - 6 The great Advance of Land by divers Orchard and Garden Fruits.
- The Experiments whereof makes good the Improvement, promised.*

Prov. 2. 1. *The things which the diligent bring abundance. A diligent man shall before Kings.*

Eccles. 10. *All therefore that thy hand shall find to do, do it with all thy power: for there is neither wisdom nor knowledge in the grave whither thou goest.*

Printed for Adam Wright at the Kingshead in the Old-Bayley, 1652.

that Most Honourable Society of the Council of State ; to the Nobility and Gentry ; to the Honourable Society of the Houses of Court and Universities ; to the Souldiery ; to the Husbandman, Farmer, and Tenant ; to the Cottager, Labourer, or meanest Commoner. At page 77 he says :

There are so many sorts of Clover as will fill a volume, I shall only speak of the great Clover or Trefoyle we fetch from Flaunders called by Clusius *Trifolium majus tertium* which bears the great red Honysuckle, whose leaf and branches far exceed our natural meadow Clover ; it bares very small seed as Mustard seed, not so round but large like a bean ; the best is of a greenish yellow colour. Your Dutch, Holland, and Low Country seed is very much of it very hazardous that comes over hither. Much that is sold in the shops is corrupted by the Dutch before it came thence by over drying in the kiln or mixing old with new. Therefore my advice is to send a knowing man who hath had experience of it and buy the choicest and best. It costs me two shillings a pound for I had rather give double price for such than run the hazard of common experience.

Here is a curious advertisement at this date having special reference to another celebrated Clover, evidently what we now call Trefoil :

THE DESCRIPTION OF THE HOP CLOVER, OR TREVOIL, IN ENGLISH THREE-LEAVED GRASS.

This Three-leaved Grass will grow half a yard in length or more, and at every two inches it hath a knot with leaves and a bunch of seed, which is black, and almost like Onion Seed ; both the Grass and the Hay made thereof, is finer and sweeter than the great Clover. It will grow in any Ground, and being once planted, it will shed so much seed that it need never be planted again. It may be sown with Corn, or without, as they do the great Clover ; or being sprinkled in Meadows, it will exceedingly mend the Hay, both in burthen and goodness.

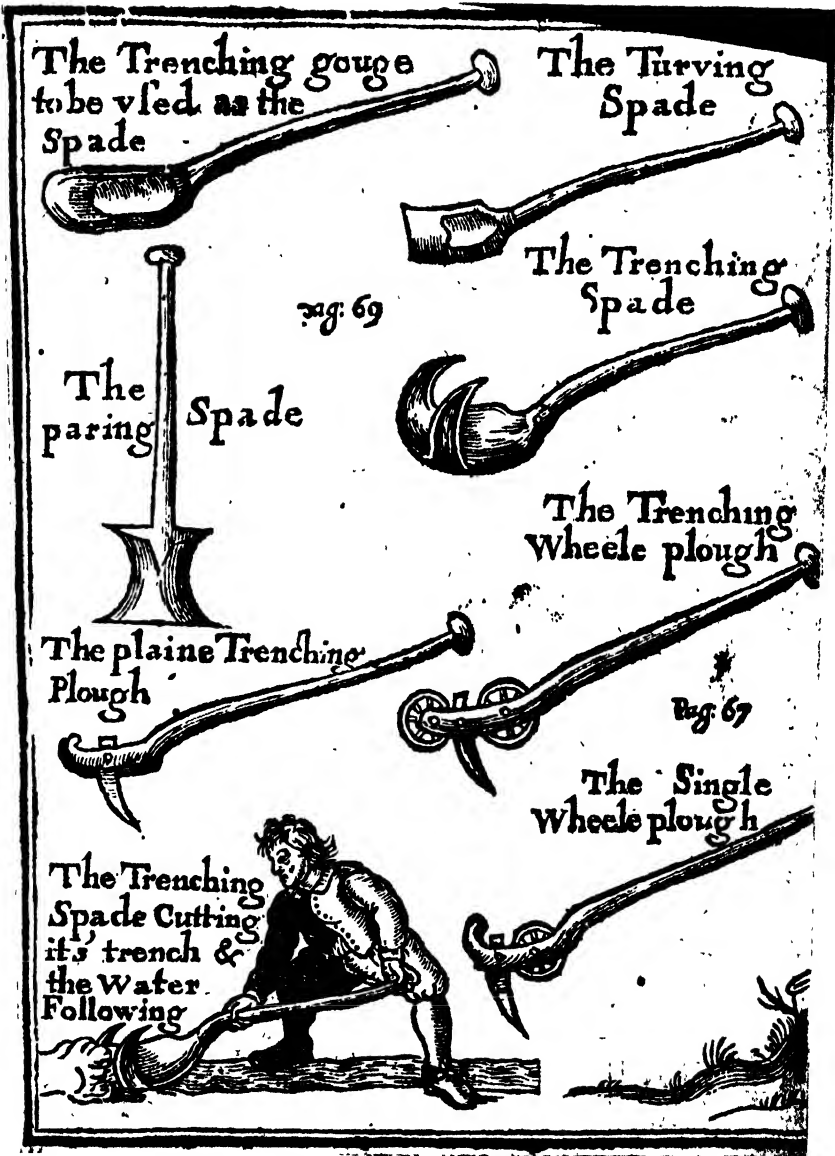
Such as are desirous to buy any of this Three-leaved Grass, or Lucerne, Spurry, Clover Grass, and Sinkfoile Seeds, what quantity they please, can have them at Thomas Brown's Shop at the Red Lyon in Soper Lane, where they may likewise see some of the Hay of this Three-leaved Grass.

He writes at length upon the properties of wood and madder in the production of dyes and of their value as remunerative crops to grow, and of the latter being grown to perfection at Barn Elms and also at Deptford, near Greenwich, by Sir Nicholas Crisp. Here is a remark about coal and hops, which seems peculiar reading considering the importance of these commodities to-day. At page 234 he says :

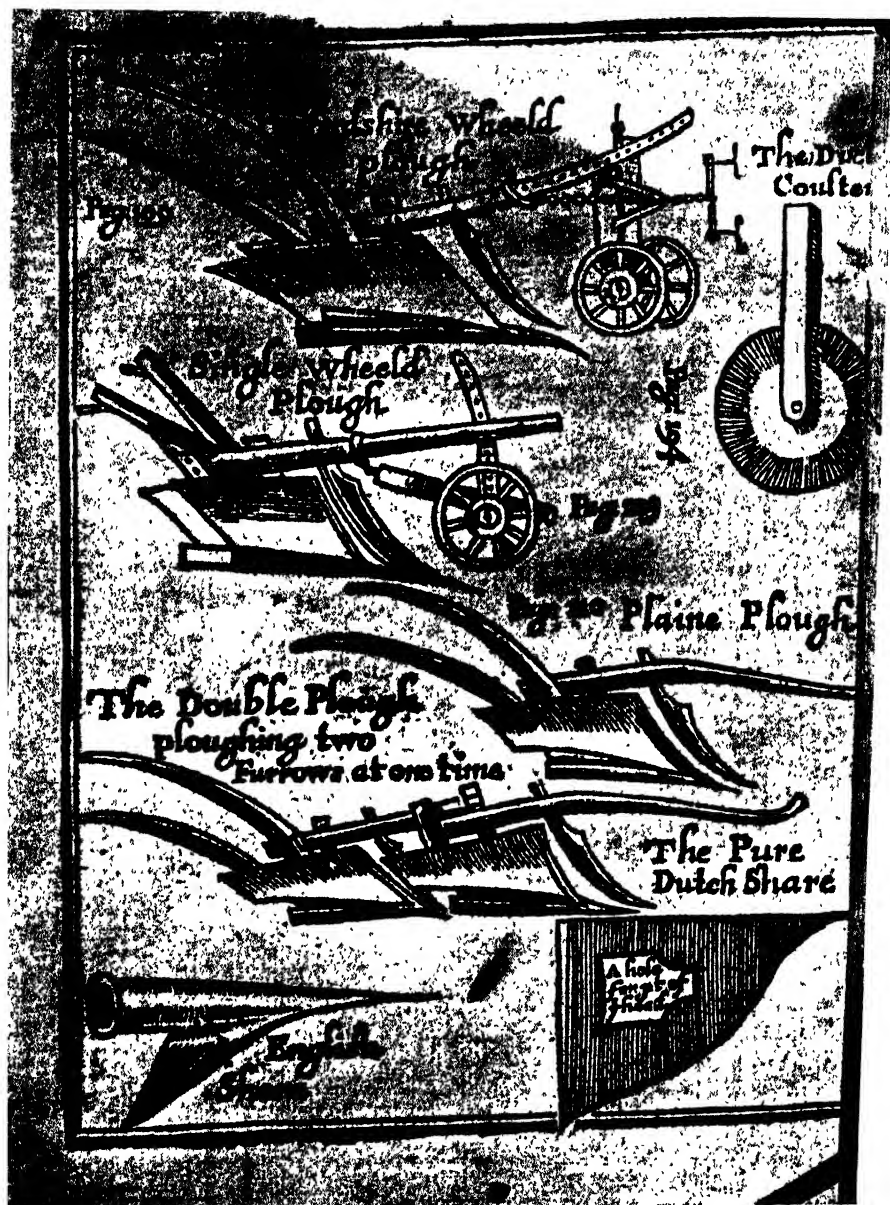
As for Hops, it was not many years since the famous City of London petitioned the Parliament of England against two Anusancies (nuisances) or offensive commodities were likely to come into great use and esteem and that was Newcastle Coal in regard to their stench etc. and Hops in regard that they would spoyle the taste of drink and endanger the people.

In case of an over large acreage of turnips furnishing too many roots for the markets, he recommends them

To be fed to stock at home, and in a dear year to make bread thereof, half meal and half boiled Turnips as a good and delightful food. He adds that swine will not



From Walter Blith's "English Improver Improved." 1652. See page 97.



From Walter Blith's "English Improver Improved.." 1652. See page 97.

eat a raw turnip any more than a Scot will eat swine's flesh, yet the boiling of them first and given to the hogs with a good wash will induce them to eat them raw and they will run after the cart and pull them forth.

He adds an appendix, humbly remonstrating

unto any of the Honourable Committee of Parliament designed, or that hereafter may be designed for taking of grievances, Promoting the Common good, Advancing of Ingenuity, or for Regulating Forests, Wastes or Commons within this Commonwealth.

Advocating

Division of the land into leases and divers ways. Many forests, moors and Commons as they are now enjoyed through the oppression of the Rich, the sloth and idleness of the Poor and the misusage of all. My eyes have many a time seen one person employed all day in tending one or two beast, whose wages could not be less than three shillings a week. Of whose labour the Commonwealth is deprived hereby. Enclosure will bring far more honest ingenious employment in planting, fruit growing, Corning, sogling, Clovering and Coleing and maintain many more people.

The book contains a folding illustration of an engine-worked mill, to be also used for drawing water; a page illustration of levelling instruments; of spades of many kinds and ploughs of divers descriptions. (See pages 101 and 102). There is no mention in any of his works as to who or what he was, or from whence he came, or when he died. It may be noted that his name is variously spelt by contemporaries who make reference to him, and by one he is described as Sir Walter Blythe.



ADOLPHUS OR ADAM SPEED.

1600-1660 (*about*).

LITTLE is known about Speed, whose Christian name is given by all the biographers as Adam, whereas in a copy of the 1648 edition of "General Accommodations," by Adresse, "signed and dated by himself April 26th, 1630, at Mr. Fisher's house in King Street, within the Covent Garden," proves it to have been Adolphus. He appears to have associated himself with reputable society; though no particulars of his parentage or birth are forthcoming. He is asserted to have begun to write in 1626: but Walter Blith, whose books are already described, stated in 1652 "that till a short time previously, Speed had not published his works." My copy of "Adam out of Eden" is dated 1659, printed for Henry Brome at the Gun in Ivy Lane. It is "an abstract of divers excellent Experiments touching the advancement of Husbandry"; and, again, according

to Blith, this work was published by the good nature of Hartlib, whose record is given elsewhere.

In his address to the reader Speed says :

How excellent and how innocent the art of Husbandry is. Nor can there be found in Nature a more ingenuous, necessary, delightfull, or honourable employment than Agriculture; a calling born with us and bred in us, affording matter for the most refined wits. . . . Embrace this opportunity and reduce these precepts to practice. England affords Land enough for the Inhabitants, and if men did but industriously and skilfully improve and manure it, we need not go to Jamaica for new plantations.

The first chapter "sheweth how ground may be raised from the value yearly of £200 to the sum of £2000 by means of rabbits, which are to be kept in enclosures and indulged with the shelter of furze and broom." "There is plenty of land," he adds, "within fifteen miles of London at eight shillings the acre, and more further away at one shilling that will carry five hundred breeders, the progeny of which will fetch eightpence each several times in the year."

Chapter 2 is all about "Coles to be had at the Pits near Nottingham to the Trent side and so by Boats to Newark and the Towns adjacent, to be delivered at two shillings and sixpence per load."

Chapter 3 concerns turnips on Devonshire lands and those grown at Hackney. In Chapter 4 he describes the sow thistle as a useful grass, wonderfully fruitful for milch cows, and in the making of cheese. Chapter 5 is all about clover, and how he proved its value when sown under a crop of barley. He also says : "St. Foyne is exceedingly profitable, and may be cut seven or eight times in a year." He reckoned one acre of clover to keep four cows winter and summer, one acre for seed to produce five bushels, one acre for hay to give seven loads and one half, to sell for £6 6s. 8d. the load. (There is something very different in a comparison of his acreage weights with those of to-day. In naming seven and a half loads per acre he must have referred to the fresh crop as carted to the stack, as nowadays a farmer considers his hay crop a good one if it turns out in trusses anything near two tons per acre.)

Like other writers of his day, he refers to "the strange kind of grass growing in Wiltshire with which they fat hogs, being four-and-twenty foot long."

He says at Chapter 7 : "Potatoes are excellent for making bread, cakes, paste, and pyes; as they give the crust without and the food within," and adds : "There is a knight now living in London that got a thousand pounds per annum by planting carrets in a mere sandy ground." At Chapter 14 is given directions how to have as good musk melons as are in Italy, and produced here by the Earl of Dorset and Earl of Tenett.

To have a white spot on a black horse's forehead, he says at

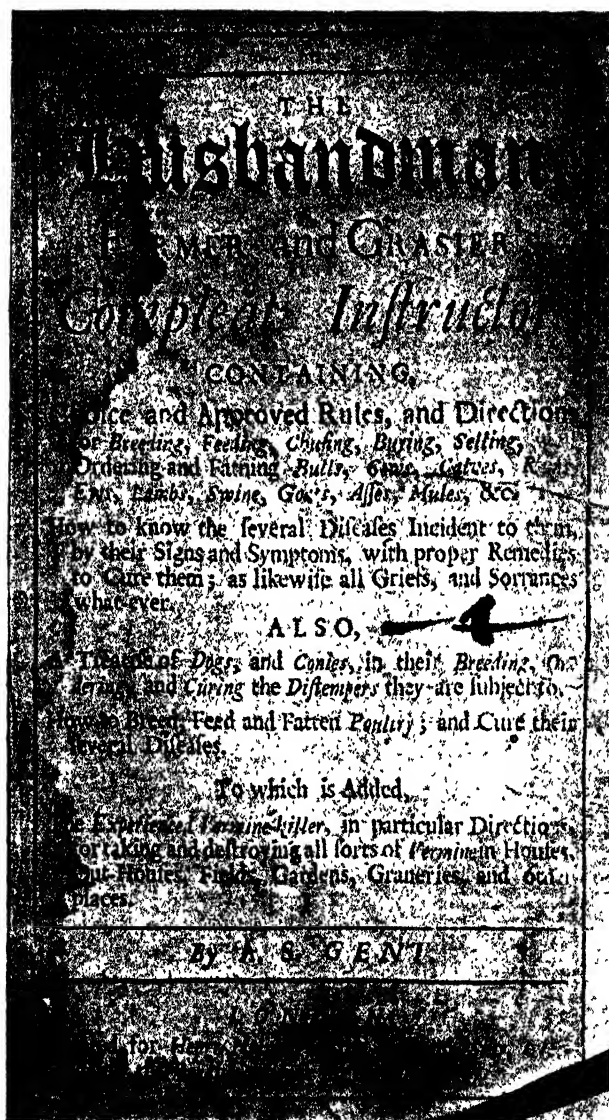
ADAM OUT OF EDEN, OR,

An abstract of divers
excellent Experiments tou-
ching the advancement
of Husbandry.

SHEWING,
Among very many other things, an
Aprovement of Ground by *Rabbits*,
from 200 *l.* annual Rent, to 2000 *l.*
yearly profit, all charges deduct-
ed.

By *Ad. Speed. Gent.*

LONDON,
Printed for *Henry Brome*, at the Gun
in *St. Dunstons*, 1659.



Title page, Speed's "Husbandman." 1697. See opposite page.

Chapter 25, "First shave off the hairs and make the place bare with the fume of brimstone, and white hairs will come thereon."

Although Speed's book is interesting it cannot be considered so far advanced as others of a few years' earlier date, and I agree with Blith, who says, "He had a lack of practicality and a love of reckoning up theoretical schemes of profit," and he adds that Speed was maintained for divers months by Hartlib "while he was inventing some of these his discoveries." "The Husbandman, Farmer, and Grazier's Complete Instructor" is also put down to him. My copy states on the title page, by A. S. Gent, and as the date is 1697. In respect to this point the "Dictionary of National Biography" says, ". . . There is no reason to identify him with A. S. Gent, the author of "The Husbandman, Farmer, and Grasier's Compleat Instructor," 1697. The identification is chronologically improbable, and the book differs in character and style from Speed's known works." (See illustration opposite.)



GABRIEL REEVE.

THIS author, who wrote "Directions for the Improvement of Barren Heath Land in England," in 1670, says he had practised husbandry for thirty years, and had improved much land; and then went into Brabant and Flanders, where he saw a new lesson to be learned. He mentions largely clover and turnips, and Devonshiring (paring and burning) of land, which was done for £1 an acre. Clay, loam, and marl are recommended as manures, and to plough deeply, and to dung well. See illustration, page 108.



SIR CORNELIUS VERMUÏDEN.

1600-1660 (*about*).

SIR CORNELIUS VERMUÏDEN, Knight, held the post of a colonel in the army of Cromwell. He was a Dutchman by birth, and wrote "A Discourse Touching the Draining of the Great Fennes lying within the severall Counties of Lincolne, Northampton, Huntingdon, Norfolk, Suffolk, Cambridge, and the Isle of Ely, as it was Presented to His Majestie." London: Printed by Thomas Fawcet, dwelling in Grubstreete neare the lower Pumpe, 1642. Sir William Dugdale, who some years later wrote a "History on Embankments and Water Channels,"

Directions
 Left by a
GENTLEMAN
 TO HIS
SONNS:
 FOR THE
Improvement
 Of Barren and Heathy LAND
 IN
 ENGLAND and WALES.
 LONDON,
 Printed by E. T. and R. H. for R. Royston, Book-
 seller to the Kings most Excellent Majesty,
 M DC LXX.

gives a very interesting document relating to the contract made between the Government and Vermuïden. Given under the Great Seal of England, and bearing the date of the 24th day of May, 1626, it states that he should "at his own charge drain and lay dry certain lands therein mentioned and the conditions thereof and the considerations therefore."

This agreement being made the work was begun, and had so successful a progress that with the charge of nearly £56,000 it became fully finished, with the result that land previously not worth 6*d.* per acre became worth 10*s.*, and that grounds were better worth 13*s.* 4*d.* an acre after than they were 2*s.* before. These drainage works were afterwards in great part destroyed by people who, being envious of the prosperity of those interested, took advantage of the disputes between King and Parliament. Although Vermuïden carried the work through, and was appointed on the commission to look into the drainage of the various marshes and levels throughout the country, he had ultimately to appeal to Parliament to obtain a final satisfactory settlement for his work.



J. SHA.

1620-1680

J. SHA was the author of a work entitled "'Certaine Plaine and Easie Demonstrations; of Divers Easie Wayes and Meanes for the Improving of any Manner of Barren Land, although the same bee not worth Twelve Pence the Acre; and Showing How to Make the same Become Worth XX*s.*, XXX*s.*, or XL*s.* the Acre Yearely.' Published for the increasing of the wealth and the Prosperitie of the nation, and the benefit of the poore and all those that are owners of any barren land. London: Printed by T. F., and are to be sold by William Ley, at his shop at St. Paul's-chaine, near Paul's churchyard. 1657."

The first eight pages seem written to exploit a certain invention called a dung roller, and he also treats on digging, trenching, dunging, draining, and watering according to the custom of the day. Beyond this reference to the book there is nothing special to record from its pages.



M. STEVENSON.

1630-1684.

M. STEVENSON wrote "The Twelve Moneths, or a Pleasant and Profitable Discourse of every Action, whether of Labour or Recreation, Proper to each Particular Moneths, branched into Directions Relating to Husbandry, as Ploughing, Sowing, Gardening, Planting, Transplanting, Plashing of Fences, Felling of Timber, Ordering of Cattle and Bees, and of Malt, &c., as also of Recreations on Hunting, Hawking, Fishing, Fowling, Coursing, Cockfighting, to which likewise is added a necessary advice touching Physick, when it may and may not be taken. With the Faïres of every Moneth." London: Printed by M.S. for Thomas Jennor, and are to be sold at his shop at the South entrance to the Royal Exchange. 1661.

It is certainly a curious work, but as a book of reference or instruction it could never have held an important place. Take as a sample from his directions for March: "If any trees grow barren, bore holes in the root and drive pins or hard wedges of oake wood therein and that will make them fruitful."



SIR JOHN PETTUS.

1613-1690.

THE illustration opposite portrays the title-page of a most interesting little book, of which the authorship is put down to Sir John Pettus. It will be noticed that it states that the book is written by a "person of honour lately deceased," and as Sir John is known to be the author of a book issued twelve years later, and was living several years after that date, it cannot very well be said that the statement has been verified. Whoever wrote it knew what he was talking about, and had evidently made himself thoroughly acquainted with the peculiarities and value of the plant as a farmer's crop. He speaks of discussions raised between sanfoin and the planting of tobacco in England, the likelihood of the latter being of greater value, and the question was raised of prohibiting the culture of either of them in this country.

And feels that there was cause to restrain the planting of English tobacco in justice to those who have adventured their lives and fortunes in those colonies so far from their native countries for the enlargement of the King's territories and dominions, and have engaged themselves to vend their tobacco only in His Majesty's dominions,

S. Foine Improved:
A
DISCOURSE
Shewing the **Utility** and **Benefit** which
ENGLAND
Hath and may receive by the
G R A S S E
CALL'D
S. FOINE:

And answering to Objections urged against it.

Being useful for all Ingenious Men.

Written by a Person of Honour lately deceased.

L O N D O N,
Printed by S. G. and B. G. for Nath. Brooke, at the
Angel in Cornhill, 1674.

upon promise and assurance that their trade should not be prejudiced by the planting of tobacco here in England.

St. Foine is the most wholesome grass that cattle can eat, from whence some have thought it to be *Sanum fœnum*, but it is indeed called in French St. Foine, that is *Sanctum fœnum*, it seems to spring out of the earth as if it were a more especial favour from God, not only for nourishing and fattening herds of cattle, but also to serve for Phisick for beasts that are sick, and is called of the Latines Medica.

It begetteth so much milk and so good that the dairymaid in one week finds a great alteration for the better in colour, quantity, and quality. It must raise very much, and very good honey and wax, bees delighting in it so much, and unless that which God promised the Israelites be a curse to England, viz., A Land flowing with milk and honey, I hope no man will endeavour to hinder the increase of St. Foine.

Sainfoin is grown to-day very largely upon light dry soils in the south of England, chiefly on the limestone formation. It is a very hardy plant, and withstands both cold and drought. There are now two varieties; the old English long-standing type, which is cut once a year, and will last for many years, and the giant, which is a strong growing sort of Continental origin that usually gives two crops a year, but dies away after a few years. The seed is sown early in spring, often under a corn crop, either broadcast across the rows of corn, or in gin. drills. If sown in the husk, at the rate of five bushels per acre, or if shelled seed is used about 56lb. per acre. It may be depastured, soiled, or made into hay. I have also seen it scratched into corn stubbles on the chalk in Surrey, and with seemingly very little cultivation yield a heavy fodder crop early the following season, and eagerly purchased by owners of horses.

Sir John Pettus, Kt. appears to have resided in Suffolk, and was M.P. for Dunwich. He was appointed by Cromwell Deputy-Governor of the Mines Royal, and translated a work from the German into English "On the Laws of Art and Nature in Knowing, Judging, Essaying, etc., the Bodies of Confined Metals," published in 1686, with a fine portrait and forty-four engravings.



ANDREW YARRANTON.

1620-1685 (*about*).

It has already been observed that the seventeenth century was distinguished in the annals of husbandry by the introduction and cultivation of certain forage and herbage plants, many of which retain their place on the farm to-day. They mostly consist of leguminous crops, and chief among them is clover, lucerne, and sainfoin. The first record of any of the true grasses for hay or pasture is noted in Dr. Plot's "Oxfordshire," published in 1677, where he states:

They have lately sown ray grass, or the *Gramen loliaceum* (now known as *Lolium perenne*, or perennial rye grass), by which they improve any cold, sour clay weeping

ENGLANDS Improvement

BY
SEA and LAND.

TO
Out-do the Dutch without Fighting.

TO
Pay Debts without Money.

TO
To keep out the POOR of England with the
Growth of our own Lands.

To prevent unnecessary SUITS in Law ;

With the Benefit of a Voluntary REGISTER.

Directions where vast quantities of Timber are to be had
for the Building of SHIPS ;

With the Advantage of making the Great RIVERS
of England Navigable.

RULES to prevent FIRES in London, and other Great CITIES ;

With Directions how the several Companies of Handicraftsmen in London
may always have cheap Bread and Drink.

By ANDREW YARRANTON, Gent.

LONDON,

Printed by R. Ewington for the Author, and are to be sold by T. Parkhurst
at the Bible and three Crowns in Cheap-side, and W. Simmons at the Printer
Arms in S. Paul's Church-yard, MDC LXXVII.

See opposite page.

ground, for which it is best, but good also for drier upland grounds, specially dry, stony, or sandy land, which is unfit for sainfoin. It was first sown (he must mean artificially, as this grass is a native of the country, and forms quite three-fourths of the herbage in all old grass-land) in the Chiltern parts of Oxfordshire, and since brought nearer Oxford by one Eustace, an ingenious husbandman of Islip, who, though at first laughed at, has since been followed even by those very persons that scorned his experiments.

From the preceding it will be gathered with what eagerness the earlier cultivators sought out the forage "grasses," as they termed them, yet they seemed to have done little towards separating the finer-leaved natural grasses, the reason for which, according to a later writer, was that "These produced many small hair-like roots which filled the soil, and therefore could not but be very impoverishing and hurtful thereto." Without considering that the then very common practice of cropping a field as long as it would recompense their labours, and afterwards letting it alone for some years to recover under a crop of unsown grass, was of itself a perfect contradiction to their false theory. As an approximation, however, to a more improved system, some recommended sowing, along with the clovers for permanent pasture, the seeds shaken out of natural meadow hay, and mostly swept up on the hayloft floor without considering that, as the different species composing such hay did not ripen their seeds simultaneously, only a partial reproduction of these species could be expected; besides which, the mixture would also consist of a very large percentage of the seeds of obnoxious weeds.

We also find about this time that the turnip was being sown everywhere in fields and gardens for the sake of their roots, and that—

Sheep fatten very well on turnips, which prove an excellent nourishment for them in hard winters when fodder is scarce; for they will not only eat the greens, but feed on the roots in the ground, and scoop them hollow, even to the very skin.

The next book to notice is entitled, "The Great Improvement of Lands by Clover, or the Wonderful Advantage by right management of Clover," by Andrew Yarranton, of Ashley, in the County of Worcester. London, printed by J. C. for Francis Rea, bookseller in Worcester, 1663. It is a work of some forty-six pages octavo, and dedicated to the industrious husbandman, freeholder, or farmer. This little book contains the most truly practical matter that had appeared in the agricultural world to the time when it was written, as it is divested of all extraneous and adventitious notices with which the writers of those times swelled their works.

In writing of obstructions to good husbandry he says:

It is in consequence of a too stiff adhering to old customs, especially with the Irish and Welsh, as King Henry the Eighth said, "they will not leave the old mumpsimus for a new sumpsimus."

He then breaks out into poetry in praise of clover :

When poets call for aid, do they invoke
The oyl of barley, hops, or Indian smoke ?
Must Bacchus fill their veins ? these drown and smother
And dull their wits ; give me the oyl of clover,
One drop of which contains such virtue in it
It makes a perfect poet in a minute.
I crave no aid ; give me the goose's quill
That's fed with clover, and I'll try my skill.
But three-leaved grass soon yield a three-fold profit ;
Three volumes may be writ in praises of it.

The author ascribes the failure in growing clovers to the very just cause of ignorance in the management ; the unprepared state of the ground, and too little seed being sown. He avers that clover improves land by the corruption of superfluous parts of the plant, by the root cleaning the soil, and by the shade of the leaves, beneath which the moisture is retained, and an incipient decomposition is encouraged, which mellows the surface of the ground, and provides food for future crops. These opinions have not yet been superseded. It being a well known fact that leguminous crops are often ploughed in to add nitrogen to the soil. The author thinks dry, gravelly grounds are not agreeable to the clover plant, especially if it has not been well limed before. He reckons six acres of clover equal to thirty acres of natural grass in the maintenance of cattle. He urges the use of lime to encourage clover, and reckons £3 per acre to be the worth of clover to grass or mow. The month of March is recommended for the sowing of clover, that the plants may be rooted before the drought catch it, and the quantity is 12lb. per acre. The author had sown clover without grain in April and August, and preferred the latter month. It is sown by hand, like corn. The hay is made as nowadays, by turning the swathes gently, and not shaking out, and it is recommended to mix the ricks of damp clovers with barley and oaten straw, which will make good fodder. Clover lands, after being mown, are much benefited by being watered for the second crop, if the application be possible. Clover is good food for all grazing animals ; cattle are cautiously put to eat it, in short spaces of time, for three following days. Horses are introduced to it without danger, and also swine at any time of the year. Geese and turkeys are also fed upon clover. Drilling and hoeing of the plant is mentioned, but not strenuously advocated. He adds that the land is richer from the decayed leaves, and the additional grazing so manures the land that after three or four years

It doth so frame the land that being ploughed it will yield three or four years together a crop of wheat, and after that a crop of oats.

Yarranton issued in 1677 a work entitled "England's Improvement

by Sea and Land, to outdo the Dutch without fighting, to pay debts without money, to set at work all the Poor of England with the growth of our own lands." London, Printed by R. Everingham for the Author, and are to be sold by T. Parkhurst at The Bible and Three Crowns in Cheapside, and N. Simmons at the Prince's Arms in St. Paul's Church-yard. It is addressed to The Right Honourable Arthur Earl of Anglesey, Lord Privy Seal, and to the Right Worshipful Sir Thomas Plater, Knight, Chamberlain of the City of London. A second address to the Right Honourable Thomas Lord Windsor. A third address to my noble patriots Sir Walter Kirtham Blount, Bart.; Sir Samuel Baldwin, Sir Timothy Baldwin, Knights; Thomas Foley, Philip Foley, Esquires; Thomas Smith, Esquire; Joseph Newbrook, Samuel Whyte, Nicholas Baker, John Finch, Nicholas Harrison, Gents. The general purport of this work is the making of canals and rivers navigable, so that home-grown corn stored in various parts of the kingdom can be readily carried from one part to another, and by such means wars between the Dutch and ourselves would cease. Beyond the fact that he was a business man, little is known of his lineage or social existence, but he was certainly possessed of very extensive views and an enlarged comprehension.

A very interesting book is "The Account of Andrew Yarranton, the founder of English Political Economy," by P. E. Dove. Edinburgh. Printed by Johnstone and Hunter. 1854.



JOHN WORLIDGE.

1640-1700 (*about*).

LITERATURE was fast becoming the occupation of such leisure as could be snatched from the practical affairs of the world, and in agricultural matters the advance was no less pronounced than in the other sciences; and in this direction our present author gave to the community a book which contains much more useful and enlightened observations than any which had previously appeared. It was first produced in 1669, and again in a third and greatly improved edition, from which my illustrations on pages 117, 120 and 121 are taken. The work is addressed to the gentry and yeomanry of England; then comes a lengthy preface showing the excellency, utility, and necessity of husbandry in all ages, from which the following extract is taken:

In several places in Germany whenever they fell a tree they always plant a young one near the place, and no young farmer is permitted to marry a wife till he brings proof that he hath planted and is a father of a stated number of trees.

Syſtema Agriculturae;
The MYSTERY of
HUSBANDRY
DISCOVERED. *per.*

Treating of the ſeveral New and moſt Advantageous Ways
OF

Tilling, Planting, Sowing, Manuring, Ordering, Improving

Of all ſorts of

GARDENS, MEADOWS, CORN-LANDS,
ORCHARDS, PASTURES, WOODS & COPPICES.

As alſo of

FRUITS, CORN, GRAIN, PULSE, NEW-HAYS, CATTLE,
FOWL, BEASTS, BEES, SILK-WORMS, FISH, &c.

With an Account of the ſeveral INSTRUMENTS and
ENGINES uſed in this PROFESSION.

To which is added

KALENDARIVM RUSTICVM:

OR,

The HUSBANDMANS Monthly Directions.

ALSO

The PROGNOSTICKS of Dearth, Scarcity, Plenty, Sickneſs, Heat,
Cold, Froſt, Snow, Winds, Rain, Hail, Thunder, &c.

AND

DICTIONARIUM RUSTICVM:

OR,

The Interpretation of RUSTICK TERMS.

The whole WORK being of great Uſe and Advantage to
all that delight in that moſt NOBLE PRACTICE.

*The Third Edition carefully Corrected and Amended, with one whole Section
added, and many large and uſeful Additions throughout the whole Work,*

By J. WOODBRIDGE

Virgil.

*O fortunatos nimium, sua si bona norunt,
Agricolae.*

LONDON, Printed for Tho. Dring, at the Harrow at the corner
of Chancery-lane in Fleetstreet, 1681.

He writes an exceedingly interesting chapter upon the history and value of the leading clovers and other leguminous crops, and he recommends three bushels per acre of ray grass mixed with nonsuch (trefoil), because of itself it's a thin, spiry grass, and will not be of any bulk the first year unless thickened by the other, which, failing by degrees, this grass thickens upon it, and lasts for ever. He also speaks of French tares, or vetches, very quick of growth, and excellent food for both cattle and horses. He recommends spurrey as making excellent butter, and for making hens lay more eggs. He repeats the old story of the 24ft grass at Orcheston, in Wilts, but is careful to add that it is in length, and not in height. He refers to the value of saxifrage in pastures in the districts where cheese is made, and praises the heavy cropping powers of the everlasting pea. He quotes from Pliny that Triptolemus was the inventor of the plough, and that oaten malt makes good beer. On page 41 he says :

There is a new sort of oats or groats growing like unto whole oatmeal, without any hulls ; they grow near the city of Durham, where they have been yearly sown above these thirty years. After they are sown they come up like common oats, but with a smaller blade ; when they are ripe upon the ground they are like ripe oats, and not easily distinguishable from them, the greatest difference being that, in the thrashing, these come out of the husk clean, like unto Dantzick rye, and need not be carried to the mill, as other oats, to be made into oatmeal or groats. The taste of these naked oats is more sweet and fleshy than others, and they are most natural boyled, as rice in milk.

Buckwheat is a grain written of as good on barren sandy loam and excellent food for swine and poultry. It was much sown in Surrey. It makes cows yield an abundance of milk when the grass is burnt up in summer. The pulse crops are also mentioned as of greater value than farmers generally considered them in that day. In the chapter on the setting of corn he describes Mr. Gabriel Platte's discovery of infinite treasure in the form of an engine for the purpose, and considers it full of errors, and gives full particulars of his own machine for the purpose, with an illustration. It is stated to sow the seed fast or slow, and by an added contrivance, no harrowing was afterwards necessary. This surely must have been the original of the corn drill as we know it to-day.

He knew of the advantage and improvement by changing the seed from land which has been frequently tilled, and called hook land, into land newly broken, and he describes the burning of land as Denshiring, corrupted, he thinks, from Devonshiring, because it seems there to be most adopted. Lengthy chapters are given on forest trees, ornamental trees and fruits for walls. He also urges the extended culture of the vine, divers places still retaining the name of vineyards, as "at Bramwell Abbey, in Norfolk, and at Ely, in Cambridgeshire, many places in Kent, including one at Great Chart, in the Wilde of Kent, and between

Gloucester and Ross." I believe the only vineyard now existing in the country which yields a quantity of wine annually is at Cardiff Castle, the Marquis of Bute's residence in South Wales. Chapters on grafting, transplanting, pruning, hops, and many garden crops are exceedingly interesting. He speaks of the red strawberry growing in new fallen copses, and of an excellent scarlet variety from New England, grown by a merchant at Clapham in his garden, to which he adds that to have strawberries in autumn "you may only cut away the first blossoms of summer and they will afterwards blow anew, as he proved, for he gathered many on Michaelmas Day."

Chapter 9 is on beasts, fowls, and insects. Of sheep, he says the Herefordshire about Lemster bear the fairest fleeces of any in England. The incubator we hear so much talk of nowadays is certainly no novelty in the production of chickens, for at page 175 Worlidge says: "In Egypt they hatch their eggs in great quantities in ovens made for that purpose." In several places in this country also you may hatch three or four dozen eggs in a lamp furnace made of a few boards, only by the heat of a candle or lamp. Geese, he says, will only hatch their own eggs, and pigeons are fond of salt and lime. There are chapters upon the implements of agriculture, on fowling, on fishing, and a *kalendarium rusticum*, or monthly directions for the husbandman and gardener, and a chapter of the prognostics of dearth or scarcity, plenty, sickness, heat and cold, and other variations in the weather, and a dictionary of rustic terms used in agriculture.

Worlidge took quite a scientific view of the subject, and whilst he held peculiar ideas in many matters, which must be charged to the times in which he lived, the work was undoubtedly a very wide step in the advancement of the art, and clearly shows the rapid progress of reformations of every kind that was taking place; indeed, he is described by the biographers as compiler of the first systematic treatise on husbandry, having in his experience gathered into a focus the scattered information published during the period of the Commonwealth. He also wrote "Vinetum Britannicum, or the Treatise of Cyder," in 1676, with further editions in 1678 and 1691, dedicated to Elias Ashmole, F.R.S.; "Apiarum, or a Discourse on Bees," in 1676 and 1691, the latter edition being published by Thomas Dring, at the sign of the Harrow at Chancery Lane: and a work on the art of gardening styled "Systema Horticulturæ" in 1667, printed for Thos. Burrell at the Golden Ball, under St. Dunstan's Church in Fleet Street. He resided at Petersfield, in Hampshire, but beyond this little appears to be known of the date of his birth or death.





Frontispiece of John Worlidge's "Husbandry." See page 116.

AN ANTI-CON- FRONTISPIECE

E Tell us, your Brethren, a Rustick Song,
 Of little strong and plain, yet well contriv'd and neat,
 And situated in a healthy Soil,
 Feeding much Wealth with little Cost or Toyl.
 Near to it stands the Barn, whose use is to contain
 Enriching Stores of Hay, Pulse, Corn, and Grain;
 With Bartons large, and places where to feed
 Your Oxen, Cows, Swine, Poultry, with their Breed.
 On the other side, hard by the House, you see
 The Apiary for the industrious Bee.
 Walk on a little farther, and behold
 A pleasant Garden, from high Winds and Cold
 Defended, (by a spreading fruitful Wall,
 With Rows of Lime and Fir-trees streight and tall,
 Full fraught with necessary Flow'rs and Fruits,
 And Nature's choicest sorts of Plants and Roots.
 Beyond the same are Crops of Beans and Pease,
 Saffron and Liquorice, or such as these;
 Then Orchards so enrich'd with fruitful store,
 Nature could give (nor they receive) no more;
 Each Tree stands bending with the weight it bears,
 Of Cherries some, of Apples, Plums, and Pears.
 Not far from thence see other Walks and Rows
 Of Cyder-fruits, near unto which there flows
 A Gliding Stream, The next place you discover,
 Is where St. Foyn, La Lucern, Hops and Clover
 Are propagated: Near unto those Fields
 stands a large Wood, Malt, Fuel, Timber yields.
 In yonder Vale, hard by the River, stands
 A Water-Engine, which the Wind commands
 To fertilize the Meads; on the other side
 A Persian Wheel is plac'd, both large and wide,
 To the same intent: Then do the Fields appear
 Cloath'd with Corn and Grain for the ensuing Year.
 The Pastures flockt with Beasts, the Downs with Sheep;
 The Carr, the Plough, and all good order keep:
 Plenty unto the Husbandman and Glee
 Are the Rewards for e Industrious Peas.
 From the Brook, for here you halt,
 The following Subject in Epigrams

JOHN HOUGHTON.

1640-1705.

A COLLECTION of letters on husbandry that deservedly enjoyed a very considerable reputation were those published in 1681 by John Houghton, Fellow of the Royal Society, as they embrace a great number of subjects duly discussed by some of the most prominent men of the time, and make a volume of 190 pages, and were printed by John Lawrence, at the Angel, in Cornhill, near the Royal Exchange. The author's preface is addressed from St. Bartholomew Lane, behind the Royal Exchange, and he gives as his reasons for issuing them periodically "that they may do the greatest good in the least time." The tracts were evidently distributed loose, and bound into book form by the purchaser. In No. 1 is given a catalogue of the books in the library of the Royal Society relating to agriculture, amounting to thirty-five volumes. The list comprises mostly Continental works, and not a single one of the old writers that have been mentioned in my previous notices in these pages are represented, and while the compiler says he may have overlooked some, he thinks none that are material. In a communication upon inclosures: "It was supposeth that England and Wa'es contains twenty-five, to twenty-nine millions of acres of land, of these 'tis thought that twelve millions lie waste." (Quite recently the Government returns give the total area of land and water in England and Wales as 37,327,700 acres, and out of the area under crops and grass as 27,490,800 acres, so that the waste is just under 10,000,000 acres.) At the end of tract No. 2 is the following advertisement: "The author hereof sells by the pound chocolate of several sorts so good that he thinks none sells better. And designs to carry on these collections in one, two, or three sheets at a time about once a month." In a letter by the celebrated Dr. Plot on the unskilfulness of the husbandman, reference is made to a wheat plentifully sown in the vale between Thame and Watlington, in the county of Oxford, called mixt Lammas, it being a white-eared red-berried wheat. "It yields well, but was altogether unknown about Banbury and Burford. He also refers to a red-stalked wheat much grown around Oxford, and a long cone wheat that does not lodge or get eaten by birds." These fine wheats, he adds, were unknown even in neighbouring counties. The history of malting as practised at Derby is an article of much interest. In a chapter on books, Dr. Plot's fair volume of Oxfordshire was considered the best example of the natural history of our country that had appeared in any language; Evelyn's "*Sylva and Pomona*" the most pleasant entertainment to all the ingenious nobility and gentry; Hartlib's "*Legacy*" a never-to-be-forgotten work; Dr. Grew's "*Anatomy of Vegetables*" and his

"Museum," two such books as the world never saw before; and Sir Hugh Platt's "Jewelhouse of Art and Nature."

In tract No. 12 the learned John Evelyn discourses on various methods of baking, and the ingenious John Worlidge on the great improvement of land by the cultivation of parsley—the variety we know as sheep's or plain-leaved parsley. In his notes he observes :

That some sort of grasses do alter the taste of mutton, and that the sweetest is that which has been fed on the finest grasses, as is experienced on the Peak in Derbyshire and on the plains in Wiltshire, Hampshire, &c.; and on the contrary, the coarsest mutton is produced from the grossest meadows, marshes, &c., and sheep fattened on clover do not make such delicate meat as the heath croppers.

An interesting chapter on a method of fattening calves at Tring, in Hertfordshire, and lambs for the London market at Hadley, near Barnet, concludes the series.

Although in those days they had a knowledge of the fattening of stock for market, it was in the general management of animals that they seemed lacking. Points of quality or symmetry had not any existence among them, and when any mention happens to be made the commendations are precisely what are now avoided. Large bones and lowness of paunch were points of merit in those times, when the putting on of beef or mutton had obtained little notice, and random observations directed the practice of breeding stock. But at that time the advantages did not exist which favour breeders now; green cropping was only just beginning to be known, and the demands of consumption had scarcely begun to operate.

Here are some returns of the prices current for corn, &c., that prevailed in various parts of the country in January, 1692 :

	Appleby.		Bury.		Hempsted.		Lewes.		London.		Norwich.		Reading.							
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.						
Wheat by bushel .	4	9	5	6	...	5	6	...	6	0	...	6	9	...	7	6	...	6	4	
Rye by bushel .	3	3	4	0	...	4	0	...	—	...	3	5	...	4	0	...	—	...	—	
Barley by quarter ..	—		20	0	...	—		20	0	...	22	6	...	23	0	...	25	9		
Oats by quarter ..	9	4	...	14	0	...	17	4	...	15	6	...	15	6	...	13	0	...	17	0
Wool by the tod ...	10	0	...	10	6	...	—	...	—	...	21	0	...	—	...	15	0

The field cultivation of the potato began about this time, and he makes the first notice of it as an agricultural vegetable. "The potato," says Houghton, "is a bacciferous herb with esculent roots, bearing winged leaves, and a bell flower."

This, I have been informed, was brought first out of Virginia by Sir Walter Raleigh; and he stopping in Ireland, some was planted there, where it thrived very well, and to good purpose; for in their succeeding wars, when all the corn above ground was destroyed, this supported them; for the soldiers, unless they had dug up all the ground where they grew, and almost sifted it, could not extirpate them. They are a pleasant food, boiled or roasted and eaten with butter and sugar.

Although John Houghton was a man of education, having studied at Corpus Christi College, Cambridge, he ultimately owned a business in

the City of London, where he occupied a prominent position, as he was on the committee of the Royal Society that was specially concerned in agriculture. He died in the parish of St. Leonard's, Eastcheap, in 1705.



JOSEPH BLAGRAVE.

1610-1682.

BEARING the title of "The Epitome of the Art of Husbandry," there was issued first of all in 1669 a bulky little volume under the initials of J. B.; then again came further editions see Bibliography. The author's modesty in not giving his full name was, no doubt, due to the fact that more than half the whole book is made up of the material of earlier writers, over one hundred pages being copied from Fitzherbert, whose work was printed nearly 150 years earlier. Indeed, he seems to have drawn largely from all who came before him, but, from a want of practical knowledge, he had not sufficient intelligence to delete the irrelevant matter from that which was good. There are chapters on ploughing, sowing, grafting, ordering of flowers, herbs, directions for the use of the angle, ordering of bees, together with the gentleman's heroic exercise in the perfection of horsemanship, all kinds of farm stock, their diseases and remedies; the best way to plant clover, grass, saffron, liquorice, hemp, madder, and woad; to plash or plethe a hedge; to make forks and rakes, and a true and brief way of planting orchards. In the last edition he adds 136 pages of "new additions," including birds, fruit and vegetable gardening, that portion devoted to singing birds occupying eighty-five pages. The illustrations show the title page and frontispiece of this little volume in two editions. Blagrove was born in the parish of St. Giles, Reading.



JOHN SMITH.

1607-1673 (*about*).

IN 1670 Capt. John Smith first issued "England's Improvement Revived, digested into Six Books (in a Treatise of all manner of Husbandry and Trade by Land and Sea, plainly discovering the several ways of Improving all sorts of Waste and Barren Grounds, Enriching all Earths with the Natural Quality of all Lands, and the several Seeds and Plants which most naturally thrive therein, together with the manner of Planting all sorts of Timber Trees, to make Walks Groves. Gardens, the way of

THE
ART OF HUSBANDRY
 OF THE
ART OF HUSBANDRY.

Comprizing all Necessary Directions for the Improvement of it, *viz.*

Plowing, Sowing, Grafting, Gardening, Ordering of Flowers, Herbs; Directions for the Use of the **ANGL E**; Ordering of Bees: Together with the Gentlemans Heroick Exercise; Discourring of Horses, their Nature, and Use, with their Diseases and Remedies: Of Oxen, Cows, Calves, Sheep, Hogs, with the Manner of Ordering them, their Diseases and Remedies.

Of the Nature of Marle, the best Way of Planting Clover-Grafs, Hops, Saffron, Liquorice, Hemp, &c.

To which is Annexed by way of Appendix, a New Method of Planting Fruit-Trees, and Improving of an Orchard: With Directions for Taking, Ordering, Teaching, and Curing of Singing Birds, and other useful Additions.

By **J. B. Gent.**

LONDON, Printed for Benjamin Billingsley, at the Sign of the Printing Press, in the Piazza of the Royal Exchange, over against Popes-Head-Alley, in Cornhill, 1685.



Joseph Blagrove. See page 124.



NEW ADDITIONS TO THE Art of HUSBANDRY.

Comprizing

A new way of Enriching Meadows, Destroying of Moles, making Tulips of any Colour.

With an approved way for ordering of Fish and fish-Ponds, and destroying the Hern; and to take Carp or Tench in any muddy Pond.

How to take all manner of Birds, Small and Great with Birdlime.

To make Cabbidges and Garden-Beans grow large in any barren Ground.

A new way to destroy all manner of Field Mice.

How to make Arbors become as shady in one Year as in seven. To water an Orchard after a new fashion. To make old decayed Fruit-Trees become great Bearers, and watrish Fruit to become firm and sweet. Also how to Order Melons, Cucumbers, and Pompions.

With a brief way to Set and Sow all manner of Physicall Herbs, that they may thrive and prosper.

And the true way for drying of Herbs, in plain and easie Directions; and all to be performed with very little Charge.

With directions for Breeding and Ordering all sorts of Singing-Birds; With Remedies for their several Maladies, not before publickly made known.

LONDON, Printed for Benjamin Billington, at the Sign of the Printing-Press in Cornhill, 1685.

ENGLAND'S Improvement REVIV'D:

In a Treatise of all manner of
HUSBANDRY & TRADE
By Land and Sea.

Plainly discovering the several ways of Improving all
sorts of Waste and Barren Grounds, and Enriching all Earths;
with the Natural Quality of all Lands, and the several Seeds
and Plants which most naturally thrive therein.

Together with the manner of Planting all sorts of Timber-trees,
and Under-woods, with two several Chains to Plant Seeds of Sets by;
with several Directions to make Walks, Groves, Orchards, Gardens, Plant-
ing of Hops and good Fences; with the Vertue of Trees, Plants, and
Herbs, and their Physical Use; With an Alphabet of all Herbs growing in
the Kitchen, and Physick-gardens; and Physical Directions.

ALSO

The way of Ordering Cattel, with several Observations about Sheep, and
choice of Cows for the Dairy, all sorts of Dear, Tame Conies, Variety of Fowles,
Bees, Silk-worms, Pigeons, Fish-ponds, Decoys: with Directions to make an
Aulary. And with accounts of Digging, Delving, and all Charges and Profit
arising in all fore-mentioned: and a particular view of every part of the pleasant
Land: With many other Remarks never before extant.

Experienced in thirty years Practice, and digested into six Books,

By **JOHN SMITH, Gent.**

Published for the Common good.

London, Printed By *Tho. Newcomb* for Benjamin Southwood, at the Star next to
George's-Inn in Chancery-lane: And *Israel Harrison* near Lincoln's-Inn. 1673.

Ordering Cattel, Sheep, Choice of Sows, Dear, Tame Conies, Fowles, Bees, Pigeons, Fish Ponds, &c."

The work is addressed to Lord Viscount Brounker, president of the Royal Society, and received commendation from John Evelyn, who writes him from Sayes Court, Deptford, at that time a mansion with grounds surrounding it. It seems to have been the custom in those days before publishing a book to submit its contents for approval to some eminent man, and include his report in the first issue. The author was evidently a sea captain, as he has so much to say about the growth and management of timber that was considered of use for masts and yards of ships. The first book sets down "the great benefit that does arise from trading, which is the strength and riches of the people, as also that the Kings of England are the Sovereign Lords of the British Seas, and that the said seas have by force of arms been kept and protected from the power of all other Nations and Kings in memory, by undoubted records." The second book treats on planting forest lands and other waste lands with plants for timber trees, likewise draining such lands, cleaning and improving soils, and sowing seeds of corn and grass.

The third and fourth books contain more about tree planting. The fifth book shows how 200 acres of land may be cultivated and stocked with creatures of many kinds, the profit thereon amounting to £4500 per annum. The sixth book treats on the extensive fishing and shipping trade of the Hollanders, due somewhat to the agreement made with King Charles I., to pay unto His Majesty £100,000 yearly and £100,000 ready down. On page 9 he complains bitterly that the many forges and furnaces for the making of iron in Sussex have devoured all the famous woods. On page 35 he says: "Chalk is only a kind of white marle, for it was marle before it was chalk, and both hath its original from clay." He fully believed timber trees would grow quite as large in this country as in the West, as he knew of an American oak growing near Horsham that, when felled, contained thirteen loads of wood and timber, and he had seen fir trees in Lancashire some of them 3 yards within the ground. At page 90 he goes into the most elaborate figures regarding the felling of timber and the uses of the various parts on the market. He knew of land in England that had yielded 80 bushels of wheat per acre, which, at 8s. the bushel, should double the profit of woodlands. Straw in his day was worth 5s. a load. He knew wealthy men in Hertfordshire "that ploughed the greater part of their land with one man and two horses, who both holds the plow and drives the cattel, and in other places one man and three horses would plow an acre and a half in a day."

Smith adds in his last book that in the year 1633, being then an apprentice to Mr. Matthew Cradock, of London, merchant, one of the Society for the Fishing Trade of Great Britain, he was sent to sea by the Right Hon. the Earl of Pembroke and Montgomery, for the discovery in the island of Shetland of the manner and way of trading, the profits and

customs of the Hollanders who drive at sea for herrings on that part of the Scotch coast. Here he bought fat oxen at £5 apiece, sheep at 2s. 6d. each, and he found there was no night in the north of the island during June and July. He was of opinion that we ought to fish these seas ourselves, and not allow thousands of pounds a year to go to the Hamburgers, Breamers, and Lubeckers. Capt. Smith was evidently a patriot, and his book ran through several editions.



JAMES LAMBERT.

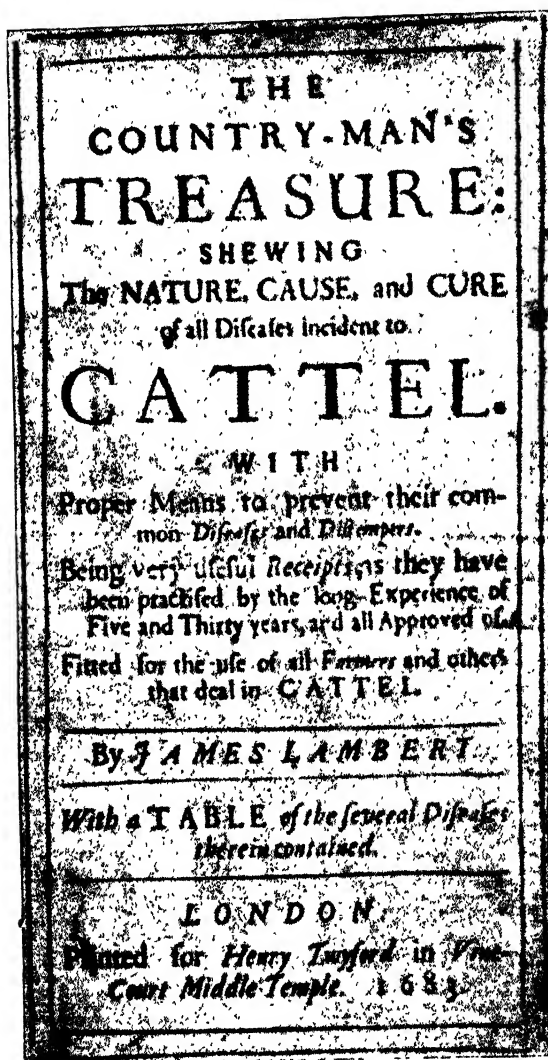
1650-1700 (*about*).

THE ills and diseases to which the live stock of the farm are heir had their early writers in connection with the other departments, Mascall, Markham, and Hartlib all having discoursed freely in this direction. The latter admitted "that we are ignorant of divers diseases of cattle and their cure, some of which sweep away cattle as the plague doth men, namely the Murrain amongst great cattle, the Rot amongst sheep, and the Surfeit in horses." James Lambert was a very prolific writer on this subject between 1676 and 1700, and the quaint woodcut frontispiece (see page 133) is taken from one of his books, together with the title on page 132. Bound up in this work is a treatise on oxen, sheep, hogs, and dogs, with instructions how to choose, govern, and preserve them in health. London: Printed for Obadiah Blagrove at the Bear in St. Paul's-churchyard. 1683. Other works of Lambert's are the following:

The Country-man's Jewel, or the Jockey's Masterpiece, plain and approved Rules to choose, feed, and breed the best Stallions, Horses, Mares, or Geldings, How to Order and Feed a Race-Horse, as also how to know a Sound Horse or Mare from one that is distempered, with approved Receipts to Cure all Distempers and Diseases in Horses and Mares; also prescribes Cures for Oxen, Bulls, Cows, Dogs, Sheep, Hogs, Deer, Hares, Conies, &c., and how to Destroy Vermin, &c.

The Country-man's Treasure, shewing the Nature, Causes, and Cure of all Diseases incident to Cattle, viz., Bulls, Oxen, Cows, Calves, Horses, Mares, Colts, Asses, Sheep, Swine, and Goats, with Proper Means to Prevent their Common Diseases and Distempers, &c., together with Plain Rules and Methods for Improving Arable and Pasture Lands, the Management, Improvement, and Preservation of Fruit Trees, Plants, and Flowers, the Manner of Ordering Flax, Hemp, Saffron, and Licorish; with Directions for Encreasing and Preserving of Bees to which is added the Art of Hawking, Hunting, Angling, and the Noble Recreation of Ringing. Printed for Edward Midwinter, N.D.

This latter appears to be a greatly enlarged edition of his two earlier volumes.



Title page of James Lambert's "Countryman's Treasure." See page 131.



Frontispiece of James Lambert's "Countryman's Treasure." See page 131.

Lambert states in his address to the reader that he had practised with very good success for above five-and-thirty years, and now freely communicates his knowledge to all his countrymen. Here are samples of his cures : A special remedy for sore eyes in Bull, Ox, Cow, or Calf :

Take six eggshells and put the meat clean forth and lay the shells betwixt two tile stones, and lay the stones and shells in the hot, glowing fire, and burn them well, and cover the edge of the tiles with clay for to keep the ashes from the shells ; and, when they are burnt, pound them to powder, and with a quill blow the powder into beast's eye, and it will mend presently ; and blow it in three times a day.

An excellent cure for the Murrain in Cattel :

Take for every beast a quart of old wash and a good quantity of hens' dung, and lay the latter to steep eight or ten hours, and then strain the dung forth, and break to every beast two rotten eggs into the fore-named juice ; and give to everyone two-pennyworth of Spikward, and blend all these together and give it the beast ; but first let blood, both sick and sound, and separate the sick from the sound. Drench both horses and swine, for they are both apt to take the disease. Bury the dead deep in the ground, so that dogs cannot get at the carcase.

In his reference to sheep he says, " Our backs and bellies are the daily instances which demonstrate the great ability of them." In the choice of sheep he remarks :

If you would have sheep of so curious fine staple of wooll, whence you may draw a thread as fine as silk, Herefordshire and Worcestershire afford such, whilst those with the deepest staple come from Warwickshire, Leicestershire, and Northamptonshire. The largest sheep are reared in the salt marshes in Lincolnshire, and their staple is coarse. Yorkshire and so northward the staple is rough and hairy.

Dried flowers of wormwood mixed with salt is an improved remedy against all diseases, and assuages all pains. In referring to dogs, the beagle, as it is called now, is described by Lambert as the gaze hound, which excels in seeing as the others in smelling. He will separate his game among a numerous herd, the full fat and youngest, and never ceaseth till he hath wearied it to death. No reference is made to the distemper, but plenty is written about the seven sorts of madnesses afflicting dogs. In a contemporary handwriting on the last page deer are described as follows :

Bucks.—First year, a fawn ; second, a prickett, straight horn ; third, a gowell, with antlers ; fourth, a gore ; fifth, a buck of the first head ; sixth, a grown or made buck. A Doe.—First year, a fawn ; second, a teg, or prickett's sister ; third, a doe.



RICHARD BLOME.

1647-1705 (*about*).

IN 1686 was issued "The Gentleman's Recreation," in two parts. The first being an

Encyclopedy of the Arts and Sciences to Wit, an abridgement thereof, which (in a clear method) treats of the Doctrine and General Parts of each Art, with Elliptical Tables, comprehending a summary and general division thereof, being a translation from the most authentick authors, by Persons well experienced therein, to which divers Sculptures and Schemes are added for the better Illustration and Demonstration thereof.

The second part treats of

Horsemanship, hawking, hunting, fowling, fishing, and agriculture, with a short Treatise of Cock-fighting, for the breeding, dyetting, ordering, matching, and fighting them. All which are collected from the most authentick authors, and many gross errors therein corrected, with great enlargements, made by those well experienced in the said Recreations and for the better explanation thereof, great variety of useful sculptures as nets, traps, engines, &c, are added for the taking of Beasts, Fowl, and Fish, not hitherto published by any. Printed by S. Roycroft for Richard Blome.

My concern just now is with the section on agriculture, the curious frontispiece to which is clearly shown in the illustration on page 138. In addition there are page engravings dedicated to the Worshipfull Thomas Fawkes, of Farnley, in the West Riding of Yorkshire, Esq., the Right Honourable Richard Lord Maitland, eldest son of the Earl of Lauderdale, the Right Worshipfull Sir Robert Clayton, of Marden, Lord Mayor of London in 1680.

The early chapters deal with the improvement of grounds by good manuring, tillage, feeding, &c., with the benefits arising from trefoyl, sainfoyn, and clover grass. He strongly recommends inclosing land, as it ascertains every man's just proportion, and prevents abundance of trespasses and injuries between neighbour and neighbour. It enables the forming of hedges not only to keep the land warm, but to give shade and shelter to cattle. He adds: "Some are of opinion that enclosures do occasion mildews and blastings, but that is a vulgar error." He extols the value of a windmill engine invented by Sir Samuel Moreland, and sold in Southampton Buildings, London, and enters fully into the cultivation of the aforesaid grasses and clovers, with the addition of grain crops, peas, beans, lentils, and other commodities including hemp, flax, and rape or coleseed, which in his day was worth 4s. per bushel, whereas now it realises more than double.

Chapter IV. details particulars of manuring, dunging, and soyling of land, and he speaks of hops being grown as a national commodity,



To the Worshipfull
of Farther in
of Yorkshire.

This Plate is humbly



Thomas Fawkes
the West riding
Esquire.

Designed by Richard Blome.

“although formerly petitioned in Parliament by the Londoners to be prohibited the importation or growth in the country : for that it would spoil their drink and endanger the people’s healths, it being an unhealthy herb occasioning the stone ; before hops were used in drink that disease was not known in this kingdom.” Saffron he considered as the richest commodity that the country produceth, and much used. The land round Saffron Walden was noted for it. Tobacco, he says, if allowed would grow very well in this island. (This has been demonstrated many times during the past few years.) He mentions the sugar peas, “which may be eaten in their cods like unto French beans,” and recommends a parcel of ducks to be turned into the cabbages to devour the snails. Parsnips, he says, will make the sweetest and most delicate of bacon, whilst that fed with carrots is loose and wastes in the boiling. They knew in his time the value of rain water as against spring water for plants. Chapters follow upon flowers, fruits, timber trees, poultry, game, bees, diseases of live stock, and a kalendar or monthly directions to the husbandman.

Here is his description of the different types of sheep known in his day, and it may interest flockmasters to make comparisons :

To stock yourself with good sheep, you must have regard to the nature of the soil where you dwell ; for according to the earth and air, sheep do alter their natures and properties ; the barren sheep becoming good in rich soils, and the good sheep barren in ill soils ; so that if you would have sheep of a fine staple of wool, buy those of Herefordshire, about Lempster parts ; also in that part of Worcestershire bordering on Shropshire ; yet these sheep are very little of bone, are black faced, and bear small fleeces. The sheep about Cotsal Hills are better boned, shape and burthen ; but their staple is courser and deeper. The sheep in that part of Worcestershire joyning to Warwickshire, and many parts of Warwickshire, also all Leicestershire, Buckinghamshire, with part of Northamptonshire, and that part of Nottinghamshire which is exempt from Sherwood Forest, are large boned, are of a good shape and deepest staple, especially if they be pasture sheep ; but their wool is courser than that of Cotsal. Lincolnshire (especially in the salt marshes) have also large sheep, but not the best wool. All these large sized sheep (especially weathers) find good vent amongst the London Butchers, to the no small profit of the Grazier. The sheep in Yorkshire, and so Northwards, are of reasonable big bone, but of a staple rough and hairy ; and the Welsh sheep are generally esteemed the worst of all, for they are both little and of a worse staple ; but their flesh is excellent for its sweet taste. The sheep of Dorsetshire are esteemed for bringing two lambs at a time, and are a good sized sheep.

Richard Blome was responsible for several books, but it is a question if he wrote many himself. I take him to have been more of a compiler than an author, or, perhaps, merely a publisher. A complete copy of these *Recreations* realised £10 at Sotheby’s rooms recently. He died in 1705.



SIR ROGER L'ESTRANGE.

1616-1704

THE rearing of cattle on the produce of arable land, which followed the introduction of clover, grasses, and roots, began about this period to make a great change in the methods adopted by farmers, and many were the advisers whose ideas were rushed into print to meet the demand for agricultural knowledge among the cultivators of the soil, and although some of these publications occasioned losses by tempting the unpractised to become farmers by inducing them to try unprofitable experiments, they undoubtedly contributed to the public benefit, if only by the wisdom gained from such failures.

The Act for levying tolls at turnpikes had been in operation for some years, yet the roads in every direction were in anything but good condition for the conveyance of produce any distance away, and this circumstance greatly hindered the interchange of commodities. The prosperity of agriculture has always been much influenced by the proximity of a busy market, the prices at which depended in the main upon good roads in ensuring a facility of intercourse and consequent equal supply at all seasons.

It was this difficulty of easy communication between one place and another that caused the prices to vary so considerably in one market from another. In 1677 appeared the curious tract of which the title-page is illustrated; the author I have put down to be Sir Roger l'Estrange, a voluminous writer of that time. He was born in 1616, died in 1704, and was buried at the church of St. Giles in the Fields. He belonged, I believe, to an old Norfolk family, and his descendants still own many broad acres in that county.

He complains that wool was "only worth 7*d.* per pound whereas previously it had reached 1*s.* 6*d.*, a condition largely brought about through the decay of the merchant adventurers who did formerly send away so many of our English cloathes into Germany," and to the great importation of Spanish wool, upon which he advocated a duty should be imposed. He feared such times were coming as would stop the kitchen from being the best room in the house. It may be stated that at one time the manufacture of our wool became a national employment, and according to the statutes of King Edward III. it was made felony to carry any wool out of the realm, and the Heroic King, as he is called, also made the following statute: "That no Merchant, Foreign or Denizen, nor any other, after the feast of St. Michael shall cause to be brought privily or apertly, by himself, nor by any other into the said land of England, Ireland, Wales, and Scotland within the King's power, any other Cloathes made in any other place than in the same, upon Forfeiture

A
T R E A T I S E
O F
Wool and Cattel.

In a Letter written to a Friend,
Occasion'd upon a

D I S C O U R S E
CONCERNING
The great Abatements of RENTS,
AND
Low Value of LANDS.

Wherein is shewed how their Worth and
Value may be advanced by the Improvement of the
Manufacture of our English Wool, and the spending
of our Cattel.

And is farther proved, that Cloathing and Hospitality
tend to the support of the Honour, Wealth, and Strength of
our English Nation.

Licensed, March 28. 1677. Ro. L'Estrange.

L O N D O N: Printed by J. C. for W. G. at the Green
Dragon without Temple-bar. 1677.

of the said Cloath and further to be punished at the King's Will as is aforesaid." (Surely all this savours somewhat of protection even at that early date !) Other statutes followed in later reigns as to the length, breadth, weight, and goodness of the cloath to prevent frauds and abuses in the making and selling thereof :

Here is a curious extract from pages 28 and 29 :

Now as a Corollary to illustrate part of our former Discourse by Example, it will not be amiss to take a view, before we leave this subject, how our Nobility formerly Lived and were Attended ; that we may see how we are degenerated, and how far short we now come to the Honour and Glory of those Ages. In the Record of Pontfract an Account by Henry Leycester, Cofferer to Thomas Earl of Lancaster, for one years Expende in the Earl's House, from the day next after Michaelmas, in the Seventh year of Edward the Second, until Michaelmas in the Eighth year of the same King, viz. in the Pantry, Buttery, and Kitchen, £3405. For 184 Tuns of Wine, &c, For Grocers Ware 180 Pounds. For 6 barrels of Sturgeon. For 6800 Stockfish so called, and for dried fish of all sorts, as Ling, Habberdine, &c. For 2319l. of Tallow Candles for the Houshold. For 1870 of lights for pacis Candles call'd Pearchers. For expences on the Earls great Horses £486 4s. 3d. For 159 Cloaths for Liveries against Christmas : viz. For one Scarlet Cloath for the Earl himself. For one Cloath of Russet for the Bishop of Anjou. For 70 Cloaths of Blew for the Knights, as they were then term'd. For 15 Cloaths of Medlies for the Lord Clerks. For 28 Cloaths for Esquires. For 15 Cloaths for Officers. For 19 Cloaths for Grooms. For 5 Cloaths for Archers. For 4 Cloaths for Minstrels.

Now follows the Provision for the Summer-Liveries : For 65 Cloaths of Saffron-colour for the Barons and Knights in Summer. For 12 Red Cloaths for Clerks. For 26 Cloaths Ray for Esquires. For 1 Cloath Ray for Officers Coats. For 4 Cloaths Ray for Carpets and in the Hall. For Saddles for the Lords Liveries in Summer, £51 6s. 8d. For 168 yards of Russet Cloath, and 24 Coats for poor men, with Money given to the Poor on Maundy-Thursday. Here is almost 300 Cloaths a year for one Family ; a sufficient Customer for one Clothier. In the 14th Year of the same King, Hugh Spencer the Elder was condemn'd by the Commonalty and banished the Realm, at which time it was found by inquisition, that the said Spencer had in sundry Shires 57 Mannours ; he had 28,000 Sheep, 1000 Oxen and Steers, 1200 Kine with their Calves, 40 Mares with their Colts, 160 drawing Horses, 2000 Hogs, 300 Bullocks, 40 Tun of Wine, 600 Bacons, 80 carcasses (not Briskets or Ribs only) of Martlemas Beef, 600 Muttons in Larder, 10 Tun of Cyder. Which Provision for the Household shews a great family there to be kept. To come neerer to our time ; in the 36th of Henry the 6th, the great Estates of the Realm being called up to London, (for it seems they lived in the Country in those days) the Earl of Salisbury came up to London with 500 men on Horse-back, not in Hackny-Coaches. Richard Duke of York with 400 men.

Richard Nevil Earl of Warwick often had six oxen eaten at a breakfast at his house in Warwick-lane. For he that had any acquaintance in that House might have there so much of Roast and Boyl'd as he could prick up and carry upon a long dagger. These are only a few instances of the Houskeeping, Charity, and Attendance of our ancient Nobility, all needing to be provided out of the land, either in the form of rents or kind. In the time of our author they were persuaded that good beef, mutton, veal, and lamb were much before combs, gills, pallets, frogs, mushrooms, and such like French kickshawes.

J. DONALDSON.

1670-1720 (*about*).

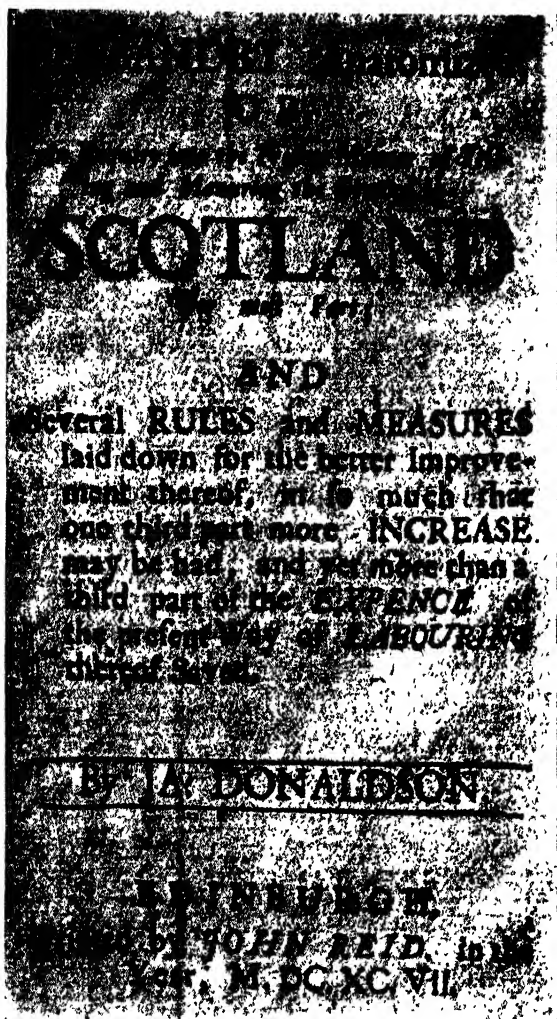
HUSBANDRY ANATOMISED: or an enquiry into the presentmanner of Tilling and Manuring the Ground in Scotland, is a rare little book written by James Donaldson, and published in Edinburgh in 1697. A high estimation has always been placed upon this work, as a valuable production of that early time, and it is considered fully equal to anything of the kind that had appeared to date. Copies are exceedingly scarce; a very good one realised £4 at Sotheby's sale rooms recently.

It is addressed to "the Right Honourable Patrick Earl Marchmont, Viscount of Polwart, Lord High Chancellor of Scotland and the whole Remnant Lords of His Majesties most Honourable Privy Council." In case any questions should be raised concerning his experience in husbandry, Donaldson gives the following brief account of his life:

I was bred in the country till I was upwards of twenty years of age; and my father keeping servants and cattle for labouring a part of lands which heritably belonged to him, I had occasion to acquire as much knowledge in husband affairs as was practised in that place of the country. Some few years before the Revolution I applied myself to the study of traffick and merchandising. But as soon as it pleased God to call his Majestie (then Prince of Orange) to relieve these kingdoms from the imminent danger they then stood in, I judged it my honour and duty to concur with such a laudible and glorious undertaking, according to my ability testified my affection to the cause, several ways needless here to repeat, and especially in leavying a company of men for his Majesties service, and served in the Earl of Angus his regiment until 1690, when it was reduced from twenty to thirteen companies.

He complains of having received nothing in return for his disbursements, consequently his credit became broken and his estate exhausted. He began to reason, and this book was the result of his deliberations. His precepts may have been of value in his day, but they are adorned too frequently with Biblical sayings and references to the proverbs of Roman writers on agriculture to be considered as representing the actions of a practical husbandman; still, it has been well said that no book was ever published from which some useful information could not be gained, and it is at least equally true that no man ever lived from whose biography no serviceable lesson could be deduced. In one form or other every writer we have discussed has tendered some examples of excellence worthy of imitation, or of methods in culture to be avoided, and Donaldson must be given his place in this category.





See opposite page.

TIMOTHY NOURSE.

1635-1699 (*about*).

TIMOTHY NOURSE comes next on our list, and the title-page reproduced on page 145 explains his book, the contents of which were considered at the time of more than commonplace order. Curiously enough, my copy contains the book-plate of Thomas Boycott, a name that had great significance in connection with the holding of land in Ireland some few years ago. Nourse was born at Newent, Gloucestershire, entered as a student at Oxford in 1655, became M.A. in 1660, entered holy orders, and became a famous preacher. Later, because of his High Church ideas, he was deprived of his Fellowship, and retired to his estate at Newent, where he died in 1699, and was buried there. No doubt he was one of those intelligent yeomen anxious to do something for his country, so he committed himself to print on matters he had gained experience about on his own estate.

His first chapter describes, from his point of view, the why and wherefore of "the bravest men in the first age of the world betaking themselves generally to husbandry," "the advantages of our country and climate above any other whatsoever," and to the "ancient gentry, of which there is not a more frank, a more generous, and a more open-hearted sort of men anywhere to be found, especially those who have not been infected with the principles of Calvin, but that follow the true English genius, which is plain, hospitable, and debonair, without ceremony or dissimulation. But as for our common people," he adds "many of them must be confessed to be very rough and savage in their dispositions, being of levelling principles and refractory to government, insolent and tumultuous. What gentleman soever, then, shall have the misfortune to fall into the neighbourhood of such boors let him never think to win them by civilities. The best way will be to bridle them and make them feel the spur, too, when they begin to play their tricks and kick." The saying of an English gentleman was much to the purpose, "that three things ought always to be kept under, our mastiff dogs, a stone horse, and a clown. Such men, then, are to be looked upon as trashy weeds or nettles growing usually upon dunghills, which if touched gently, will sting, but being squeezed hard will never hurt us."

He recommends the planting of hemp and flax because the thread and cloth made of it is clean and fit for ladies, whose nice fingers would refuse to handle greasie wool. It was on this account that all virgins through all the early ages, even of royal degree and birth were, and are still, styled spinsters. He extols the planting of mulberries for the production of silk, and ladies to weave it who are much taken with the

Campania Foelix.

OR A
DISCOURSE
 OF THE
Benefits and Improvements
 OF
Husbandry :

CONTAINING
DIRECTIONS for all manner
 of *Tillage, Pasturage, and Plantations*. As
 also for the making of *Cyder and Perry*.
 With some **CONSIDERATIONS** upon
 I. *Justice of the Peace, and Inferior Officers.*
 II. *On Inns and Alehouses.*
 III. *On Servants and Labourers.*
 IV. *On the Poor.*

To which are Added,
TWO ESSAYS :
 I. *Of a Country-House.*
 II. *Of the Fuel of London.*

By **Tim. NOURSE, Gent.**

LONDON : Printed for *Tho. Bennet*, at the
Half-Moon in *St. Paul's Church-yard.* 1700.

See opposite page.

gawderies of butterflies ; and the growth of the walnut tree for its fruit to eat, its oil, and the great value of its wood for furniture.

He reduces husbandry to three general heads—tillage, pasturage, and plantation ; and recommends that land be fallowed every third or fourth year. Dung requires digestion or maturation by reason of the seeds which lie in the litter. Fresh dung he considered better for stercoration than an old putrid mass, as the saline or sulphurous parts of the dung are wasted in which its vegetative power chiefly consist. Lime kills weeds, corrects coldness of the soil, and cherishes the grain. Burning of land is an excellent good practice. Wheat steeped in salt brine and powdered with lime is recommended as a preventive against many evils. He was an advocate for tiled roofs instead of thatched ones. Broom is an enemy to pasturage, and the way to destroy fern is to whip off the young heads of it with a switch as soon as it peeps out of the ground, for then it is very tender, and will weep or bleed extensively. After a few cuttings in this manner it will die away. Malt dust is recommended as a fine top-dressing to grass, and the planting of tobacco in England, a production which certainly would be beneficial to a world of people, and yet it is destroyed by public order as fast as ever it grows up. He considered meadow and feeding grounds had fallen at least fifteen per cent. since the importation of the foreign grasses, clover, and sainfoin, although he admits that more corn and cattle can be raised by their aid, "as they lie fattening in clover."

A long chapter is devoted to inns and alehouses, in which he advises the magistrates to exercise a vigilant care over the licensing of these resorts. A chapter on the poor does not suggest any scheme for their relief, but is merely observations on the means of avoiding poverty. On the subject of fuel, the author recommends wood and charcoal, in order to prevent the smoke from coals in London, and adds, "what more is to be lamented than the glorious fabrick of St. Paul's now in building, so stately and beautiful as it is, will after an age or two look old and discoloured before 'tis finished, and may perhaps suffer as much damage by the smoak as the former temple did by the fire. It might have been more convenient that the outside of the sumptuous pile had been of a plainer mould." He reckoned that "the summ total of the chimnies in London was nearly three hundred and sixty thousand." (What would he say of to-day, when there must be millions.) "What I have written," says Nourse, "is not grounded on the reports and methods of others, but upon my own observation, towards which I have had some small advantage by my long continuance in a private and country life."



Of Grass rais'd by Foreign Seeds. 8.

Now to apply these Notions to the Point in question; and first, It is, questionless, the Inclination of every Man to improve his Estate as much as he can by the Arts of Husbandry, as we may suppose in our present Case, by sowing his Ground with Foreign Seeds, such as *St. Foin, Clover, &c.* But whether it be for the Interest of the Commonwealth to countenance and permit such Improvements may be a Question: For if it shall appear that such Plantations are Injurious to the Publick, according to what's already premis'd, the Government has Power to restrain Men from pursuing their Domestick and Private Advantage, when it shall be to the Detriment of the same Persons, as they stand engag'd in a Publick Body or Society.

The Considerations tempting us to believe that such Innovations in Husbandry ought to be permitted, are these, *viz.* Besides the Benefit which a vast Number of Persons reap from Improvements of this nature, certain it is, that great Numbers of Cattle are rais'd this way, and consequently more Corn, because more Dung: Nor can *Clover*, for the purpose, be continu'd but for a little time without Tillage. Now the more Corn and Cattle are rais'd, the cheaper must all Provisions be, which is generally look'd upon to be a Benefit to the Publick.

This Reason, how specious and popular soever it may seem upon the first Appearance, will, upon a nearer View, be found to be ev'v thin

LEONARD MEAGER.

1670-1720 (*about*).

"THE Mystery of Husbandry," of which a photographic reproduction of the title page is given opposite, was first published in 1697 by Henry Nelme at the Leg and Star in Cornhill, and was considered at the time a work of first-class merit. He was for some time a gardener in employ at Warkworth, in Northamptonshire. In the preface to the reader the author states:

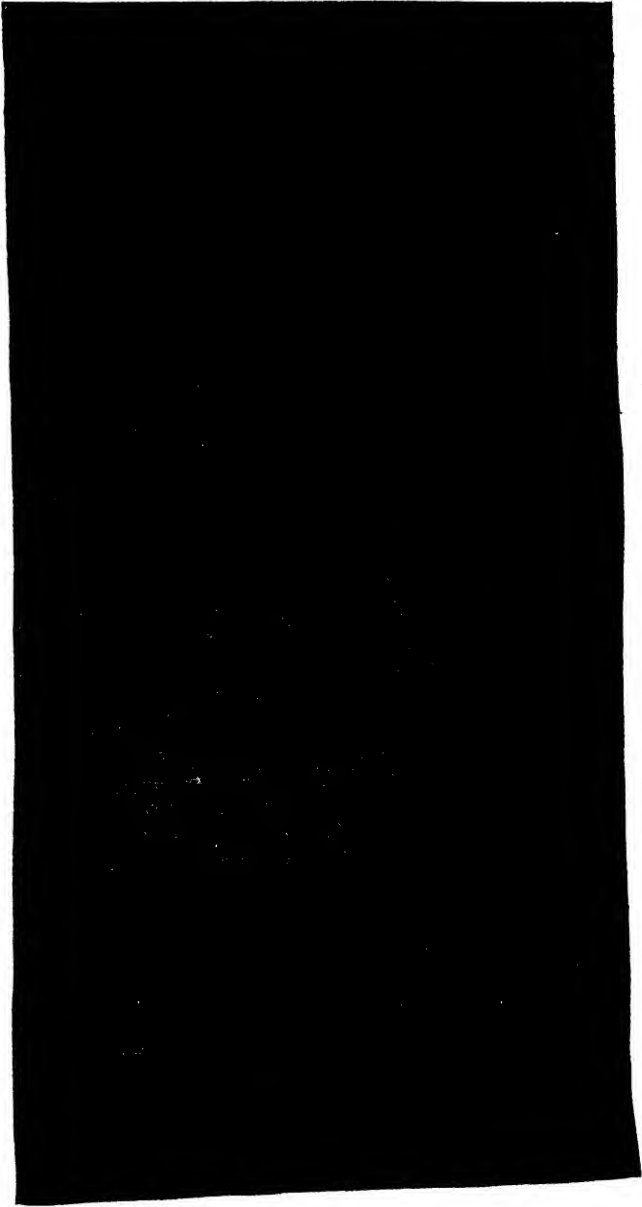
Having well weighed and considered with mature Deliberation that a work of this nature cannot but be grateful to my Country, I have the more laboured to bring it to the highest pitch of improvement, supplying what has been omitted by others, who have with some diligence and industry attempted to compile a compleat Body of Agriculture . . . well meant, because most of them had not practised what they writ, but were obliged to borrow them from others and take them on trust, and many of them from Foreign Authors, not well considering that different climates produce different effects.

This was sound logic, and Meager seems to have carried these advanced ideas right through his book in a manner which commands respect for the man and his methods. In the Introduction he calls the merchant

A gallant servant to the Commonwealth, who fetches his riches from afar, and is a worthy contributor to the wealth and prosperity of the Kingdom; but he produceth it from others who could themselves make great profit of it, and though he gaineth a great Estate, yet he raiseth it not out of nothing, but parts with silver and gold and with Commodities for it. But the Merchant of Husbandry raiseth it out of the earth, which otherwise would yield but little, unless his ingenuity digged and fetched it out. What rates purchased be it at? Even only by his own industry and with the wages of the labouring men, whom he is bound by the laws to allow a competent maintenance.

In the chapter on the fertility of the land, he says "It is a sign of goodness when the crows and pies in great numbers follow the plough, or if the land yields a pleasant odour after a shower of rain following a drought." For enriching ground he recommends the lupin "before he bears his cods, being turned up with the plow and laid in bundles about the roots of trees." Nowadays the farmer ploughs in lupins and other leguminous plants to feed the soil with nitrogen, so that this old writer evidently had some idea of its value as a stimulator to a crop-worn soil.

Chapter III. is devoted to the value of marl, "upon which the Germans set so great a value for enriching land." He mentions German, French, and Syrian ploughs, and gives names to the parts very similar to those of to-day. The tail, the shelf, the beam, the foot, the coulter, the share,



See opposite page.

the wheels, and the staff. Oxen were evidently the favourite for yoking to the plough. Where horses are used, he adds, "the fewer of them the better; for many horses draw too hastily and make too large furrows, which is no good." Let me ask a question here in this connection. Why is it one often sees four horses attached to a plough in England on what appears to be well-worked land when in Scotland rarely more than two horses are put in front of this implement?

He seemed to have known all about the turn-wrest or Kentish plough as it is now called, and considered it a good kind for undulating land. He also reckoned that a man should turn up three acres of light land with one team a day, and one acre of clay ground. Very light soils he considered should also be sown and harrowed the same day.

If, says Meager, "you are to plough upon a hill, you must plough overthwart, and not up and down, to ease the labour of both men and cattle." He recommends grain to be steeped in sea water, but says nothing about the bluestone so freely used for dressing nowadays. Many chapters are devoted to manuring, watering, and preparing land for corn and pasture. The uses of the turning spade, paring spade, and the trenching spade in draining land are fully described, and the drawings of these implements are exactly similar to those given by Blythe in his book "*The English Improver Improved*," already described in these pages, and published about fifty years earlier.

He mentions an ingenious idea for frightening birds from newly-sown seed by "making a sort of cone with a piece of stiff paper, this is half filled with seeds, and the inner side of the open end smeared with bird-lime. The rook or other bird, in putting his beak in to reach the contents, fixed the bag to his head, and being blindfolded, as it were, he creates such an uproar that all the other birds are off, fearing the same fate."

There is a chapter on hops, in which he reckons an acre will yield 12cwt. of hops once in three years. Flax, hemp, clover, grass, and sainfoin are all freely discussed. Two sorts of turnips are mentioned, the round and the long parsnip turnip. The leaves are recommended to be rotted on the ground for manure, and the roots to be given to cattle and swine. He also calls the turnip a moist, cooling, and nourishing root, good against fevers and other hot diseases. Of carrots he preferred the deep yellow for horses, just the same as some of our great railway companies do to-day.

He thought it a good thing to turn cattle into the parsnip field to eat off the top growth, for it made the roots prosper the better. He was an advocate for planting all waste land with trees for the benefit of posterity, and shows how they are profitably raised from seeds. Then follow several chapters upon the best trees to plant in various situations, including fruits in the hedgerows. He calls the stag hunt the most princely of all games, "and when you go about this, to know whether he

be old or young, observe the prints of his feet, and if it be large with a thick heel, open cleft, long space, and a deep print, he is certainly old." "The Countryman's Almanack" is given at the end of the book, and mostly relates to the weather from observed signs.



THOMAS TRYON.

1670-1720 (*about*).

A MOST interesting book is "The Countryman's Companion," or a new method of Ordering Horses and Sheep so as to preserve them both from Diseases and Casualties, or to preserve them if fallen ill, and also to render them much more serviceable and useful to their owners than has yet been discovered, known, or practised, and particularly to preserve sheep from that Monsterous, Mortifying Distemper, the Rot. By Philotheos Physiologus (whose correct name was believed to be Thomas Tryon), 1700. Printed and sold by Andrew Sowle, at the Crooked Billet, in Holloway-court, Holloway-lane, near Shoreditch. The usual lengthy preface discourses upon the position of man and his mercy towards his beast. Man being the viceroy of creation should show great wisdom in the management of the most useful of the inferior creatures committed to his charge. Then follow chapters on the horse, his stable, food, and drink, and in respect to the latter he considers river water far to be preferred to any other, and he recommends rain water for the housewife. He is down on high living, and regrets "there should be spent daily in London £50,000 sterling in wines and spiritous liquors, which is £18,250,000 every year. A prodigious sum of money to be swallowed up in one year by a parcel of *spoiled goods* on a spot of ground not above six miles long and three broad." He devotes a chapter to this class of tyrants, who are the curse of the country.

He adds Jacob had twelve sons. "How many of them did he make lawyers, University men, or Inns of Court gentlemen? No, no; they were everyone of them shepherds, and were not ashamed of their occupation nor thought it any dishonour to their birth."

Then follow some seventy pages comprising an oration, entitled, "The Planter's speech to his neighbours and countrymen in Pennsylvania, East and West Jersey, &c., and to all such as have transported themselves into New Colonies for the sake of a quiet life." This lengthy epistle seems composed entirely of ravings against the wicked ways of living here. The writer was evidently a vegetarian and a teetotaler, and looked upon everyone who differed from him as encouragers of wrath

The Country-Squire's Companion
O.R., J. Hall
A New Method
Of Ordering
Horses & Sheep

So as to preserve them both
from Diseases and Casualties,
Or, To Recover them if fallen Ill,
 And also to render them much more
 Serviceable and Useful to their Owners,
 than has yet been discovered, known
 or practised.

And particularly to preserve Sheep
 from that Monstrous, Mortifying
 Distemper, **The Rot.**

By Philotheus Physiologus,
The Author of *The Way to Health,*
Life and Happiness, &c.

London, Printed and Sold by A. K. & Co.
 at the **Crooked-Bill** in **Holloway**,
 near **Holloway-Lane**.

and bloodshed. He finishes up with a prayer, hoping that their swords may be turned into pruning hooks, and their frightful guns into instruments of melody. Benjamin Franklin is stated to have been a disciple of this author.

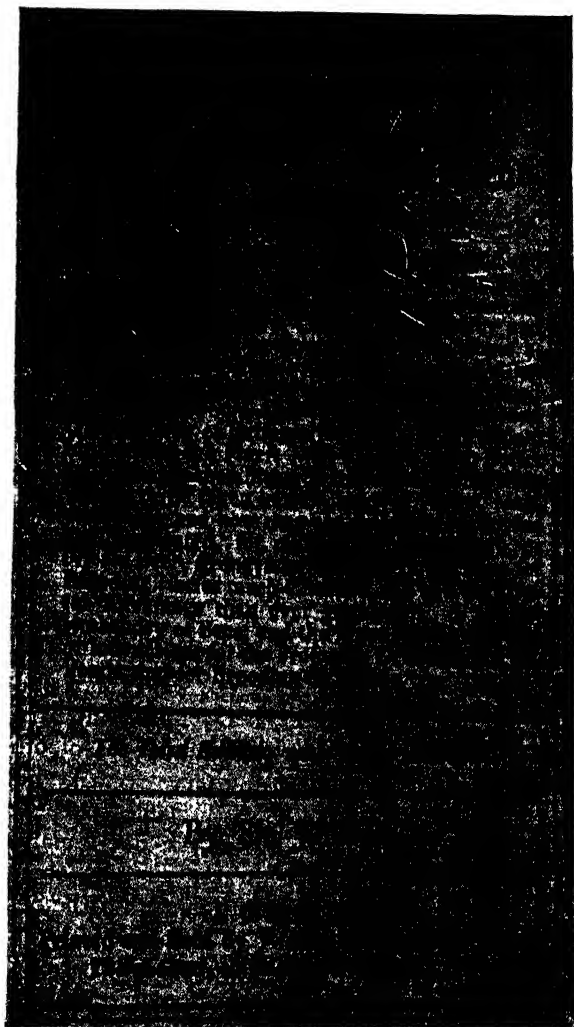


SIR JONAS MOORE.

1617-1679.

ON page 154 I reproduce the title page of a most curious little book which appears to have been thought a good deal of at the time of its publication. Sir Jonas Moore, F.R.S., was Surveyor-General of His Majesty's Ordnance. He was born at Whittle, in Lancashire, in 1617, and died suddenly while travelling to London from Portsmouth, at Godalming, in 1679, and was buried in the Tower Chapel with a salute of as many guns as he had counted years of life.

He wrote several mathematical works, and "History or Narrative of the great level of the fens called Bedford Level," with a large map describing the operation fully. In his "Farmer's Friend" (see illustration on page 154) this worthy old Government official deplored the enormous area of waste land in the country, which he recommended should be planted with fruit trees for the production of cyder and perry, and thus produce as great a revenue as that arising to the French King from the planting of vineyards. He then discourses on the great profits accruing from the industry, and holds that these home-made drinks are as strong and wholesome as any that come from France and Spain. He next details its manufacture, and reckoned that the industry "may save £800,000, which goes every year to the enrichment of other nations." Chapter III. deals with the raising of the trees from kernels and their general culture previous to becoming serviceable in the orchard. In Chapter IV. he gives directions for brewing the finest malt liquors. As to the water to use, he says: "Thames water taken up about Greenwich at low water, where it is free from all Brackishness of the Sea, and has in it all the fat and Sullage from this great City of London, makes a very strong drink, which improves on being carried out to Sea." But upon the whole he thinks the finest ale was made from water taken from a clear rivulet or brook undisturbed by navigation or fording. He was of opinion that the water question was an important one, and adds, "possibly the best water in England is that at Castleton, in Derbyshire, which owzes from a great rock." He had seen ale made of this water as clear in three days as the spring water itself, and impossible to be known by the eye in a glass from the finest Canary wine. As for your malt, he adds, the north-country malts from Nottinghamshire, Derbyshire, Leicestershire, Cheshire, and Lancashire are the best for ale. He



See page 153.

and all other Domestic Cattle, as well as Horses, Ponies, or Useful to Man, with Directions for their Breeding and Rearing: Rules to be Observed in Breeding, and Preventing such Distempers as are Incident to them, and Approved Cures for all such Distempers, both Internal and External: as frequently afflicting them, with Speed and Inconsiderable Charge: Together with Rules and Plain Directions and Methods for Improving the Soil and Pasture-Lands, and the like: Improving most Sorts of Grain to the best Advantage, and what is necessary to be Observed in Sowing and Harvesting: The Manner of Improvement and Preservation of Trees, Trees, Plants and Herbs, The Manner of Ordering Wax, Hemp, Saffron and Linen: With Directions for the Enrichment and Preserving of Bees; and many other Things of the like Nature.

To which is Added,
The Art of Hunting, Hunting, and the Noble Recreation of the Game.

By J. Smith, Gent.

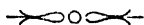
Printed for J. Smith, at the

Shop of the Author, in the

First Bound, 1677.

preferred their methods of culture and handling to those adopted in the south.

He next discusses the brewing of beer in March and October. He was no believer of the ten-year-old beer that many country gentlemen talked of and magnified. In the chapter devoted to the breeding of horses he strongly recommends the best and most healthy to be used as parents, as a poor horse imparts all its vice to its progeny. The remainder of the book is devoted to bees and the virtues of honey, and to the great profit to be made by breeding of carp in fishponds near the City of London or other eminent cities inhabited by the nobility and gentry.



JOHN SMITH.

It is a question whether the John Smith who wrote the "Husbandman's Magazine" is not the same individual I have discussed on page 124. Be that as it may, the present is quite a distinct book, and dated thirty-five years later. In the epistle to the reader he commences, "Since there is nothing more useful than Husbandry, and that in the well management of Rural Affairs the welfare of Kingdoms and States mostly depend, I consider it a necessary duty to give my Countrymen full directions to improve their honest labour and industry." His ideas on the management of beasts contain much that is according to modern opinions, as he does not go in for the wild extravagances of some of those before him; yet his medicines consisted of most of the old herbal remedies. To cure the staggers he says: "Take a quarter of an ounce of beaten pepper and half a pint of vinegar well warmed, pour it into the nostrils of the beast, holding his head back, and afterwards let him blood in the Nose Vein." How to know the age of a horse by his tail he says: "Feel with your thumb and finger close to the setting on or growing to the rump, and if the joint on each side stick out in a knob bigger than any other by the bigness of a small bird's egg, then he passes not two years old; but if that joint be plain and even with the rest, then he is between ten and thirteen years old." Many are the remedies given for curing the ailments of this noble beast. When discussing sheep he breaks out into poetry, presumably to fill up the page:

When summer fair with Western Winds doth call
Your Lusty flocks to Woods and Pastures all;
Send them betimes, when day at first does rise,
And Hoary Dew on verded grass thick lyes;
From thence, when at the fourth hour of the day,
(The Sun high mounted) make them dry, convey
Them to fresh springs, where pleasant waters be,
And make them drink in Troughs of Oaken Tree.

The Whole ART
OF
HUSBANDRY.
Or, The Way of
Managing and Improving
OF
LAND.
BEING

A full COLLECTION of what hath been
Writ, either by ancient or modern Authors: With
many Additions of new Experiments and Improve-
ments not treated of by any others.

AS ALSO,

AN ACCOUNT of the particular Sorts of
Husbandry used in several Counties; with Proposals
for its farther Improvement.

To which is added,

The Country-man's Kalendar, what he is to do
every Month in the Year.

By J. Mortimer, Esq; F. R. S.

The Third Edition Corrected.

L O N D O N,

Printed by J. H. for H. and G. Mortlock at the Phoenix,
and R. Robinson at the Golden Lion in St. Paul's
Church-Yard MDCCXII.

JOHN MORTIMER.

1656-1736 (*about*).

THE contents of the book illustrated on the preceding page are generally considered to show a great advance in the progress of agriculture from the earlier authors on the subject, and the photograph of the title-page details exactly of what it chiefly consists. John Mortimer was a merchant on Tower Hill, London, and an F.R.S. He appears to have been fond of agricultural pursuits, and in 1693 became possessed of an estate in Essex called Toppings Hall. Like a good many more experimental agriculturists, he spent his whole fortune carrying out his up-to-date projects, many of which he states, "are imparted for the benefit of posterity." He had three wives, one of whom was a descendant of Oliver Cromwell, while he himself came from the ancient Somerset family of Mortimer, and whose estate in that county was mostly swallowed up by the sea.

The work is addressed to the Royal Society, and he thanks Dr. Sloan and Dr. Sprat, Bishop of Rochester, for their assistance. Chapter I. deals with the inclosing of land, "which lays a foundation for industry and good husbandry, because of the security it gives a man in the quiet possessing the benefit of his labour and care." He then explains how best to divide the fields with quicks, ditches, and banks, or with stones, as in some southern countries. He preferred the whitethorn as a fence plant to the blackthorn, and he considered the holly best for very clayey soils, and the alder for fences against streams and rivers, because it preserved the banks from being undermined by the water. Furze he found good for edges where nothing else would grow. He considered the thorn hedges of Hertfordshire were the best to be seen in England because of the system of splashing forward in that county, and he describes how it differs from other methods. Chapter II. is on pasture and meadow land, describing their value on certain soils and in certain situations. He illustrates the Persian wheel for use in raising water to overflow the land. He also pictures another wheel "much used in Lincolnshire to drain the fens." He details the operation of haymaking in quite a modern manner.

As soon as your grass is mown, if there is plenty of it that it lie thick in the swath, cause your haymakers to follow the mowers and to cast it abroad; this they call tedding of it. At night make it into cocks, and next day, as soon as the dew is off the ground, spread it again, and if you find it dry make it up into cocks. Next day draw it in long rows, which they call win-rows; make it again into cocks if wet comes on, but if fine collect it up and carry it to the stack. Put on all the hands you can, that you may observe the old saying of making hay while the sun shines.

He seems to have known all we know to-day, with the exception of the mowing machine, and he recommends meadows to be utilised every

alternate year as pastures, and fed off instead of being mown, "for feeding is as necessary for hay ground as fallowing is for corn lands." He considered English clover seeds the best, and he knew all about alternate husbandry. Rye-grass is recommended for sowing with the clover to prevent the bursting of cattle. He knew little about harvesting clover seed as he adds, "If one could get an account from Flanders how they thrash their clover there it would be of great advantage." He speaks of the seed being sown in the husk, and I know of a farmer to-day who sows his land with clover heads, in spite of the enlightened times in which we live. He speaks of rye-grass seed being worth 2s. 6d. per bushel in London (nowadays it fetches 4s. to 6s.). Sheep's parsley and mustard are sovereign remedies when grown as a crop against rot in sheep. He preferred the Hertfordshire plough to any other, being the strongest and easiest of draught on all sorts of land, and he gives diagrams of the various makes used in different parts of the country. He purchased seeds of the various corns brought from the north to the south. He always steeped his seed corn in brine, and by putting worm-wood into the brine it prevented the birds from eating it.

He next goes into the structure of soils, the weed plants found in each, what crops various soils are best likely to carry, and the cultural customs in different countries in altogether an intelligent manner, and much in accordance with the practices of to-day. There are chapters upon chalk, lime, and marl, and also on various manures—all exceedingly interesting. He recommends sowing "rye in the dust and wheat in the dirt," and he may have been the originator of this old farmers' saying. Of the different wheats he speaks of the eggshell as a good white on light lands. In Essex they largely sow the red-bearded wheat, in Oxfordshire the long cone wheat, in Staffordshire the red lammas, in Berkshire a variety of what they call pendulum wheat, from the hanging of its ear. Of barleys, the rathripe or patney in Oxfordshire, the Scotch barley in Lincolnshire, and the wheat barley in Staffordshire, shaped like barley, but a grain like wheat: "tis much sown at Rowley, Homstal, and Redmore. It makes good bread and malt." Of oats, he refers to a sort of red or naked variety grown in Staffordshire that is fine for oatmeal, "because the kernel thrashes out of the hull without carrying it to the mill."

Hops are thoroughly discussed. He says in Hampshire they sell water trefoil as dear as hops, as an eighth part of it goes as far as the hops, and it does as well. Several chapters are devoted to live animals of all kinds for stocking the land. The best sort of cow for the pail, he says, is "the long-legged, short-horned cow of the Dutch breed, many giving two gallons of milk at a meal." Of sheep, he says around London they buy Way-hill sheep, a sort bred in Hampshire, Wilts, &c., which lamb very early. (There is a celebrated sheep fair at Weyhill, Salisbury; this is probably the place he refers to.) He says pigeons are

very fond of salt, and the swan sits for six weeks. The cost of work done on the farm was very low in Mortimer's day. Ploughing land, 5s. per acre; harrowing, 1s.; reaping and binding wheat, 5s. per acre, rye, 4s.; mowing oats, 1s. per acre; digging garden ground, 4*d.* per pole; to make a hedge and clean a ditch, 5*d.* per pole; to cut grass and make hay of it, 3s. 6*d.* to 5s. per acre. There is an interesting chapter on coppices and what the statutes say regarding the cutting down of the undergrowth and the number of trees to be left standing per acre. Over 100 pages are devoted to gardening, and another lengthy chapter on brewing, in which he recommends the little book by Sir Jonas Moore, discussed on page 153. Nottingham ale seems to have been a speciality in those days. He gives the recipe for making mum, as recorded in the Townhouse in Brunswick. The "Farmer's Calendar" in directions of monthly work would do credit to any modern publication, and convincing evidence of the importance of Mortimer's book is the fact that it was translated into the Swedish language.



BISHOP WILLIAM FLEETWOOD.

1656-1723.

AMONG the arts cherished and improved in the monasteries of early days I have read of many monks who were skilled in the cultivation of the land, and Sir Richard Benese, of Merton Abbey fame, was one of the earliest exponents in the measuring of land, see page 31. Bishop Fleetwood, the subject of our present review, was the translator of the book of which a facsimile of the title page is given opposite. He was born in the Tower of London in 1656, and educated at Eton and Cambridge. He became chaplain to King William and Mary, and in 1708 was created Bishop of St. Asaph, being translated to Ely six years afterwards. He died at Tottenham in 1723, and was buried in Ely Cathedral. He was considered one of the best preachers of his day, and his writings were generally read and admired, their influence being confirmed by the benevolent heart and mind which produced them.

In a learned discourse, called the author's preface, he states that in the most happy ages of the world men fed only upon the products of the earth, and he regrets that in his day the love of ease and luxury hindered any proper application being given to perfect agriculture and gardening. He maintains that all the illustrious families of the Roman Commonwealth were descended from herdmen, ploughmen, and gardeners, the rich and vicious dying away because of their want of stamina, such as is



Fleetwood. See opposite page.

only given to those who till the soil. Quintus Cincinnatus, he adds, was working at his plough when news was brought to him that he was created Dictator.

There is a chapter on the multiplication of corn. The illustration opposite is also taken from his book, and it is clear, if authentic, that they had more prolific types of barley than are available to-day with all our knowledge. He refers also to a wheat which grows as many as thirty-two stalks, and ten ears on each of them. Each ear had thirty grains, which made in all 320 ears, and 9600 grains produced from one single seed corn. A chapter on nitre as the salt of fruitfulness, and its virtues as being wonderful for the multiplication of vegetables and of animals, is quite a learned discourse upon its value and uses from the days of antiquity.

Although his book does not contain any lengthy advice pertaining to agriculture, the original writer, the Abbot de Vallemont, deserves a notice in this volume as being one of the first to apply his knowledge of chemistry practically to the cultivation of the soil. There was a time when the farmer scoffed at such an application, and many were the wild theories published by dabblers in science which practical cultivators quoted in justification of their scoffs. In no department is the union of practice with science more beneficial than in that of dealing with the fertility of the soil. It exhibits in a light to the most obvious the intimate connection of the sciences; the mechanism of our implements, the physiology of our animals and plants, the chemistry of their food, and the geology of our soils are all subjects upon which volumes have been written since Dr. Fleetwood translated from the French the book I am now discussing.

In 1707 he published anonymously his "*Chronicon Pretiosum*," a book very valuable for its research and general accuracy on the value of money and the price of corn and other commodities for the previous six centuries. The question had occurred whether the statutes of a college making the possession of an estate of £5 per annum a bar to the retention of a fellowship were to be interpreted literally or with regard to the altered value of money. Fleetwood clearly makes good the more liberal interpretation.





Fleetwood. See opposite page.

GILES JACOB.

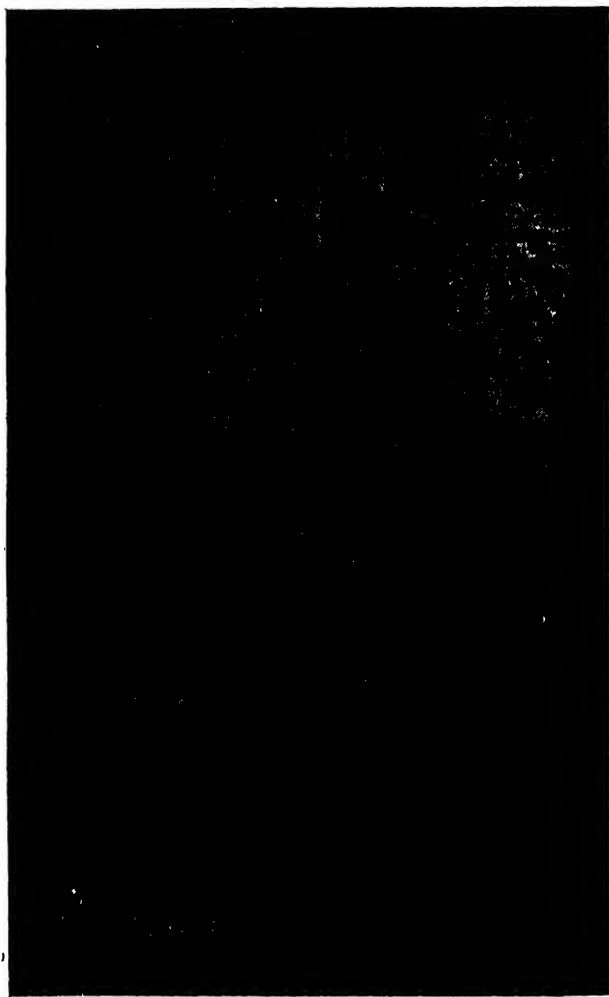
1686-1744.

THE photograph opposite is from a scarce little book written by a country gentleman fond of the pursuit of agriculture and gardening, and no work of the same bulk previously noticed has contained such useful matter. Agriculture has ever needed the assistance of educated men in its practice, and it seems extraordinary that it should have derived most of its valuable advancements from many who were not professional cultivators. Even when no originality comes from the labour of education on that point, the existing practice is adorned and rendered attractive. Jacob was born at Romsey in 1686. After serving an apprenticeship to the law, he became secretary to the Hon. W. Blathwayt, a celebrated courtier in the reign of William and Mary. His book relating to country matters forms a volume of 132 pages, and shows the writer to have been a man of considerable learning, and although he professes to have no thoroughly practical knowledge of farming, his constant association with those who worked on his own estate enabled him to seize the prominent parts which related to the improvements of the day, and place them in the brighter view which arose from his education. Lands, he says, are improved by soiling, draining, watering, and grubbing. Clover and rye grass appear to have taken his fancy as being extraordinary crops for enriching lands, especially when fed off with sheep; 'indeed, he fed it for three years and then sowed again. Nowadays such a mixture as this is rarely left down more than one year. The wages of his time are given *in extenso* and also the produce of crops. He reckoned an acre of good wheat to produce 30 bushels, which is more than the average to-day. Oats and barley he put down at from 20 to 40 bushels, and he considered a load of hay to the acre as a good return from meadows. The wideness of a hedge between tenant and tenant as fixed and allowed by statute he puts at 3ft., while between lord and lord the bounds extend to 4ft. Freeholders who object to paying tithes for other people may be interested to know that by Stat. 7 & 8 Wm. III. and 3 & 4 Anne two disinterested justices of the peace have, or had in his day, the power to determine complaints relating to tithes under the value of 40s.

On the breeding of horses Jacob advised a strong similarity in the parents, and that they are well shaped, especially the mare, which the foal most resembles. Young horses should not be handled or broken to use until the age of four years. It is feared in these times of rapidity they are turned into useful stuff long before that age. The marks of a good cow are full chest, thick on the ribs, hair lying smooth and shining,



Jacob. See opposite page.



Frontispiece from Jacob's "Country Gentleman." See page 164.

handsome and round shaped. Cattle kept from Ladyday to Michaelmas in his time left a profit of 30s. apiece, which, he adds, makes good interest for one's money. He put the selling weight of an ox at 900lb., a cow 500lb., wether sheep 22lb. per quarter, and a ewe at about 18lb.

He calls deer the most noble game in England. He reckoned one acre of park land valued 10s. per acre would keep three fallow deer constantly, with an allowance of hay when snow is on the ground. You may kill the buck from July to the middle of September, when comes in the doe season, and lasts until Candlemas, while fawns may be killed from July to September. He names the deer rather differently to an earlier writer. The male red deer of the first year is called a hind's calf, the second year a nubber, the third year a brock, the fourth a haggard, and the fifth year a stag. The female the first year a hind's calf, the second year a hearse or brock's sister, and the third year a hind. The male of the fallow deer the first year is called a fawn, the second a prickett, the third a sorrel, the fourth a sore, and the fifth a buck; the female first year a fawn, second year a tegg, third year a doe. For the proper numbering of game a brace and a leish, or a brace and a half of bucks, does, hares, fish, partridges, pheasants, cocks, and snipes, and a couple of rabbits, turkeys, geese, ducks, fowls, and hounds. He mentions many old statutes having reference to the tenure of land, and he calls England the happiest kingdom in the known world. No country has laws more for the ease and preservation of a people, and no products conducing more to the support of life, health, and grandeur; and no more polite people are to be met in any nation. The other subjects of the author's notice are on gardening and fruit trees, with monthly directions as to what clothes are required to suit the weather, and he finishes up with a lengthy poem in praise of country life. He died in 1744.



REV. JOHN LAURENCE. *

1668-1732.

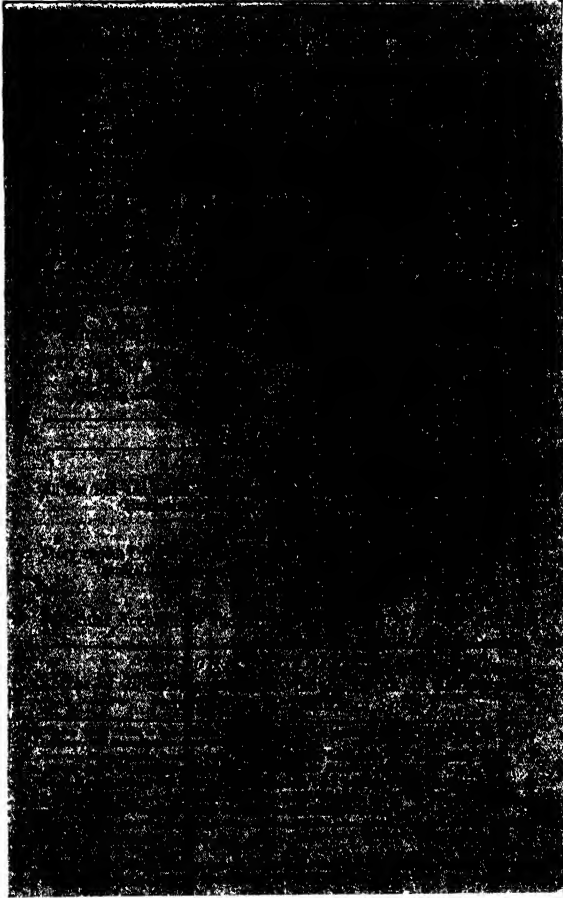
IN more ways than one the clergy of our land are often aids to the welfare and happiness of the community. In the present instance we have a set of books on husbandry and gardening, all containing a mass of the most useful information. As might be expected, whenever an amateur writes competently upon any art with which he is thoroughly conversant, he usually discourses more instructively than does a contemporary practitioner of that art. This is to be expected, because the amateur knows, from comparatively recent experience, the description of

information of which he most stood in need when first requiring instruction. He begins at the beginning of every operation; he tells his readers every point about which care is essential, whereas the professional thinks "everybody knows" all the initiatory practices, and passes on to those which remain as difficulties. Nor is this the only defect usual in the writings of a practical man. He is, for the most part, a man of facts; and in his directions he explains in the fewest possible words, which is not always suitable for teaching the uninstructed.

The Rev. John Laurence was the author of several books on gardening, but the volume I am most interested in just now is that upon agriculture, of which the title-page is represented on the opposite page. Facing this in the book is a perspective view of His Royal Highness the then Prince of Wales's house and grounds at Richmond, and other opening pages contain an address to His Royal Highness, in which he extols the virtues of the occupation of farming and gardening for giving ease and contentment to the mind.

Chapters I. to IV. represent instructive lessons on the air, earth, fire, and water. He was a strong advocate for the fallowing of land once in three years, "because it kills the weeds, by turning up their roots to the air, and if wild oats, darnel, or other noxious things show themselves the repetition soon again destroys them also. It is a means to lay the land in ridges, thereby better exposing it to receive the nitrous influence of frost, wind, sun, and dews. These all tend to sweeten and mellow the land." In the way of ordering a fallow, he considered it best not to plough it, but to let it lie all the winter and to eat with sheep or other cattle the green meat that grew thereon until April; next stir it, and, at the interval of a month, twy-fallow it.

He gives a list of some twenty-two different sorts of clays in various parts of the country, and marl he describes as the ointment of the earth. He considered that wheat grains should be sown roin. apart; the plant will then spread and tiller into many stalks. A bushel of good grain should weigh 60lb. to 64lb.—so that we have not to-day improved in this direction. He states that three parts oatmeal and one part barley makes a good bread, and a small pleasant ale was made of oats turned into malt, of which King William was a great admirer. At Over, near Cambridge, he tells us "they keep a middling sort of cow which they dispose of at Michaelmas, and buy others that will calve each month of the winter, that they may have butter enough to serve the colleges, and this is so good that the curious inquire for Over butter." The farmers reckoned to obtain seven parts in butter from eighteen parts of new milk. A good cow at Over gave twelve quarts of milk a day. In a chapter on silkworms he gives the text of King James's command for the planting of mulberry trees as a likely panacea for "preserving his people from the shame and grief of penury, and increasing them to wealth and



Laurence. See opposite page.

abundance." This may account for the many old mulberry trees one sees in old-fashioned gardens.

Chapters on mines, minerals, and quarries, iron and ironworks, lead, salt, coals, and coke are all of the most interesting character. A division of the book is devoted to trees, their uses and culture, and the rest to the fruit and kitchen and flower gardens.

Laurence was born at Stamford in 1668, being eldest son of the vicar there. He attained to his B.A. at Clare Hall, Cambridge, in 1688, and obtained his M.A. previous to moving to Yelverton, in Northamptonshire. He remained here until 1721, when he obtained the Durham Rectory of Bishop Wearmouth, became a Prebendary of Salisbury the year following, and died at his rectory on May 17th, 1732. He was buried in the chancel of his church, and a stone with an inscription was placed over his remains.*



RICHARD BRADLEY.

1688-1732.

THIS author deserves pre-eminent notice as one of the most voluminous writers upon agriculture and gardening. He was the first to concentrate in a considerable degree the best of the contents of the earlier books on these subjects, and also one of the first to treat of agriculture as a science. His writings were so prolific that he must have attached his name or approval to more than twenty publications between 1716 and 1730, and an attempt to analyse them all would be a task that could not well be carried out here, so that I will only specially mention his books on agriculture, the facsimile prints of the title-pages of two of them being reproduced in these pages. In these he quotes largely from Fitzherbert, Hartlib, Houghton, and Mortimer; yet his points are most sensibly handled, and show a well-informed and comprehensive mind, as he introduces a more methodical arrangement than any previous writer on agriculture; indeed, his work would pass muster with that of many a modern writer. His "Survey of Ancient Husbandry," 1725; "A Complete Body of Husbandry," 1727; "The Riches of a Hop Garden Explained," 1729, are all intelligently written, whether they are the records of his own pen or not. (See illustrations, pages 175 and 176.)

I have sought, but so far in vain, for particulars of Bradley's early history. However, it is known that in 1717 he was residing at Camden

* See "Notes on the Life and Works of John Laurence, Rector of Bishop Wearmouth, 1721-32." By G. O. Bellews, M.A. (Reprinted from "Antiquities of Sunderland." Printed for the Sunderland Antiquarian Society, vol. iv., pages 36-57.) Sunderland. 1905. 8vo. For private circulation.

THE
Country Gentleman
AND
FARMER'S
MONTHLY DIRECTOR.

CONTAINING
Necessary Instructions for the Management
and Improvement of a FARM, in every
Month of the Year.

Wherein is directed the Times and Seasons
proper for PLOUGHING and SOWING of all sorts
of Corn or Grain; the Planting and Managing of
Hops, Liquorice, Madder, Safron, and such other
Crops as stand more than one Year on the Ground.

The Times of PLANTING and CUTTING of Coppice
or Springs of Wood, and Felling of Timber; the
Breeding and Feeding of POULTRY, RABBITS,
FISH, SWINE, and all sorts of CATTLE.

With several Particulars relating to the Improvement
of BEE S, never before made publick.

By R. BRADLEY,

Professor of Botany in the University of Cambridge,
and F. R. S.

LONDON:

Printed for JAMES WOODMAN, and DAVID LLOYD,
in Russell-street, Covent-Garden. MDCCLXXV.
(Price 2s.)

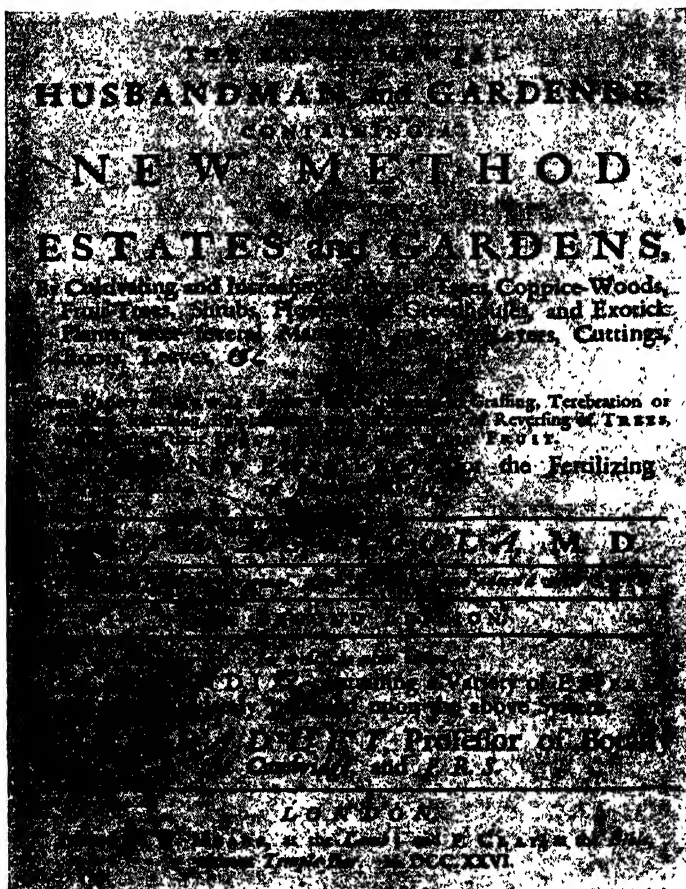
House, Kensington. He was a Fellow of the Royal Society, and in 1720 was elected Professor of Botany at Cambridge. It is not improbable that he may have been educated for the medical profession, inasmuch that he attempted to lecture on the *Materia Medica*, and that the Royal Society ever had a favourable inclination to the cullers of simples. That he should have been admitted to the Professorship at Cambridge, however, is surprising, as his unfitness for such an office was soon apparent, and his ignorance of the learned languages rendered him out of place in one of the principal seats of classical learning. When we look upon the array of his works, and find in them that acuteness of observation and superiority of attainment which are especially their characteristics, and then reflect that his end was ignominious, and that even the place of his grave is unknown, we feel the justice of this conclusion: The fruits of his excellency remain, whilst all traces of their author and his shortcomings have perished.

The historical parts of his works may still be read with pleasure. They abound with information collected from books and men of practical intelligence, with whom he maintained an extensive correspondence; otherwise, if we except some experiments which he instituted to prove the circulation of the sap and the sexuality of plants, they contain little but what our more perfect knowledge has superseded. Little as the original information is of which he was the author, yet he must be regarded as one of the best friends of both agriculture and horticulture, for his industry and talents were not mean, and, although unadorned by deep learning, they ensured him a certain amount of respect from posterity. The offence of Bradley was neither immoral nor criminal, and a just charity may decide that the good he effected much overbalanced his delinquencies, as he must have laboured indefatigably, and, however much his methods are deplored, was certainly a benefactor in his day. The theoretical and scientific views which he had of vegetation and the practical cultivation of the land—views which he endeavoured to illustrate with experiments and knowledge obtained from the experienced—contributed greatly to direct the attention, both of amateurs and professionals, unto the true path—"science with practice"—for acquiring a correct knowledge of the art. His works ran through many editions, and had a very wide circulation; and, although the contents of many of them were largely culled from earlier writers, they coincided most opportunely with the increasing love of matters pertaining to farming and gardening, and it is certain that they helped to improve both. Richard Bradley died at Cambridge in November, 1732.





Frontispiece of Bradley's "Country Gentleman." See page 170.



Bradley. See page 170.

THE
RICHES
OF A
HOP-GARDEN
EXPLAIN'D;

From the several Improvements arising by
that Beneficial PLANT; As well to the
private Cultivators of it, as to the Publick.

With the Observations and Remarks of the most
celebrated Hop-Planters in *Britain*.

Wherein such Rules are laid down for the Management
of the Hop, as may improve the most barren Ground,
from one Shilling to thirty or forty Pounds an Acre
per Annum.

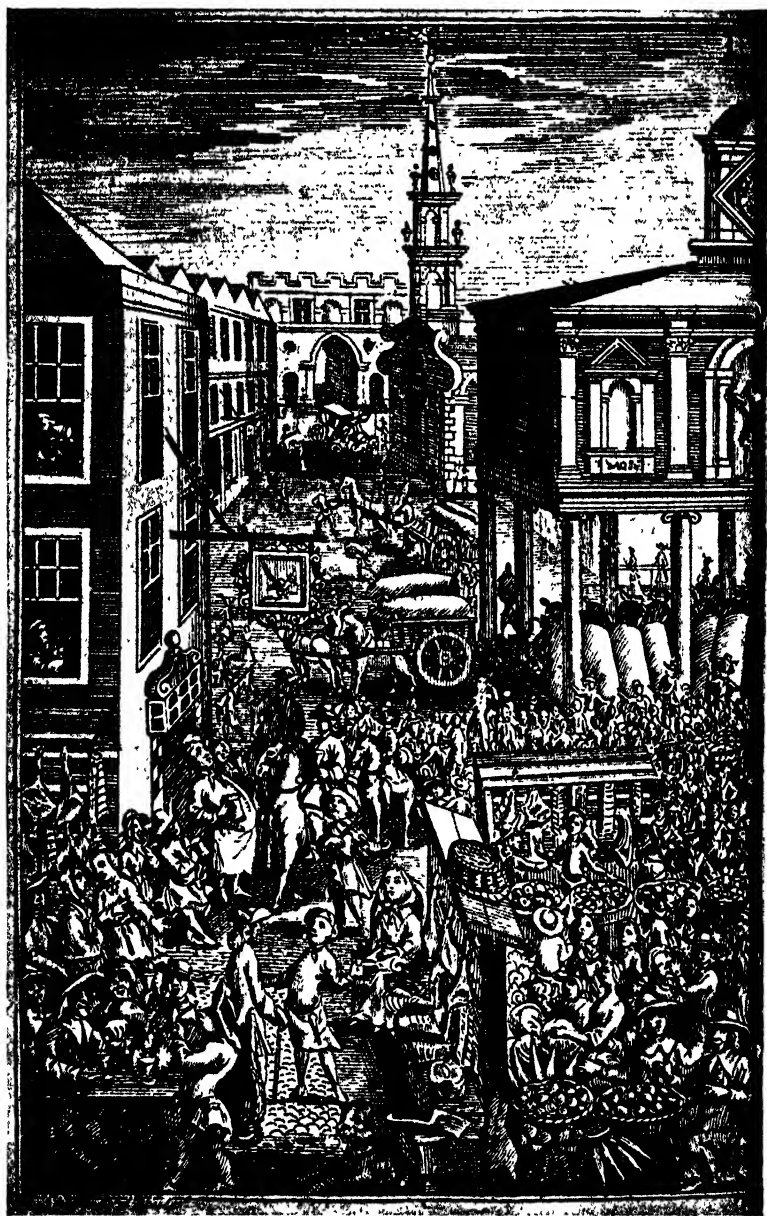
In which is particularly set forth the whole Culture
from the first breaking up of the Ground, the Plant-
ing, &c. to the Killing, or Drying of the Hop.
Rendered familiar to every Capacity.

By R. BRADLEY, Professor of Botany
in the University of *Cambridge*, and F. R. S.

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and THOMAS GREEN at *Charing-Cross*.

MDCCLXXIX



Frontispiece from Bradley's "Riches of a Hop Garden." See page 170.

Leptographia Basilica
 OF THE
 Nobility, Gentry, and Gardners
 RECREATION
 OF THE
 DIRECTIONS for the Choice of
 Situation of a Country Seat, into Rural and
 Extensive Gardens, Parks, Pleasures, &c.
 And a General
 System of Agriculture
 Illustrated
 With great Variety of Copper Plates
 done by the best Hands from the Author's
 Drawings.
 By STEPHEN SWITZER, Gardener,
 Several Years Servant to Mr. Norton and Mrs. Wile.
 Intercepted, non est, &c. &c.
 Dilectus: O fides, amor, pietas, modestia, noxia,
 Melancholia, pauper, solus, deus, &c. &c. Virg. Georg. 2.
 LONDON: Printed for D. Pears, without
 Temple-Bar, N. B. L. and C. King in Westminster-
 Hall, W. Mearns without Temple-Bar, and
 R. Gosling in Fleet Street, 1778.

STEPHEN SWITZER.

1682-1745.

ALTHOUGH this enlightened man was more of a gardener than of an agriculturist, he deserves mention in our list, because in most of his writings he has much to say that is interesting to the farmer; indeed, the book of which I reproduce the title page comes quite within our text.

He also wrote "The Country Gentleman's Companion, or Ancient Husbandry Restored and Modern Husbandry Improved," and "An Account of the Lucerne, Sanfoin, Clover, and Other Grass Seeds, with a Method of Burning Clay for the Dressing of Land," but the book I illustrate on page 177 was evidently his *magnum opus*.

This work is in three octavo volumes of a thin size, in about 260 pages each. A long preface fills fifteen pages, and the contents follow of each volume separately. A historical sketch is given from the earliest notice down to the time of the author, and is succeeded by an essay concerning earth, water, sun, and air, and the process of nature in vegetation.

The raising of forest trees is treated, and of the timbers in parks and policies. Figures and delineations are given, with the application of instruments for special purposes. Orchards are largely treated, and woods and groves described and figured. The purely agricultural part of the work occupies the second part of the third volume, and is contained in six chapters. The sections mention the subject matter, as the management and improvement of arable land by the plough, spade, &c.; of winter fallowing; of earths and their improvements; of the nature of dungs, sheep and hogs, poultry; of marble, chalk, and lime used before sowing; the superficial dressings are coal ashes, wood ashes, kiln ashes, sawdust, turf ashes, lime, malt dust, sea sand, loam, loamy sand, burnt vegetables, soap and pot ashes, soot, rags, pigeons' dung, sea shells, burn bating, burning of meadows and pasture ground by heath and fern, claying, and by inclosures; of ploughs and ploughing; of sowing; of draining of lands; on hop yards and the management.

At this period he was evidently not a master man, for he traces the absence of improvement to the ignorance of the practitioners, and that ignorance to the want of encouragement under which they were labouring. Instead of being treated as a superior member of the establishment he says, "too many masters have no more

regard for a good man than they have for a dog boy; at best he must be subject to the ill-treatment of any reigning parasite, or those that get their living by tale bearing, and often by something worse." A situation which rendered its holder liable to such degradation would only be held by those worthy of no better treatment. "We see some of them in good places, too," says Switzer, "who never open a book, nor can they either read, spell, or pronounce rightly the names of the very plants and herbs they every moment have in view." Amid this state of rural affairs, Switzer came forward as a reformer, and he met, as we shall see presently, with the usual fate of reformers—contumely, misrepresentation, and persecution.

Stephen Switzer was a general gardener and seedsman of the reigns of Anne and George I. He was a native of Hampshire, and his family descendants still linger in the county, some in humble life, and the memorials of others may be seen in the churchyard of Hyde parish, in Winchester.

He acquired his knowledge of the art under the great masters of the day, London and Wise, who had a great nursery garden where Brompton Cemetery now stands, having been, as he states in the title page of his "*Iconographia Rustica*," for several years their servant. He completed his apprenticeship at the close of the seventeenth century. In 1706 he was employed under London in laying out the grounds of Blenheim.

When Mr. London was superintendent of the Royal gardens at St. James's, Switzer was employed in the capacity of kitchen gardener. In 1724 he was in the service of the Earl of Orrery. He appears at one time to have been in some capacity servant to Lord Brooke, to Lord Bathurst, and also to Lord W. Russel, who suffered in 1683. Of this true nobleman he thus speaks :

I must not pass over the character of one of the best of masters. I mean the Right Honourable the Lord William Russel, son of the then Earl of Bedford. I shall not pretend to touch upon the matter of his unhappy fall, that being set in a true light by other hands; it shall suffice me to say as I had it from a near and dear relation, that by the loss of that zealous asserter of the liberties of his country, besides those and the more natural properties of a tender husband and father, the world was deprived of one of the best of masters and encouragers of arts and sciences which that age produced, for, being possessed of a plentiful fortune by the marriage of his virtuous lady, he made Stratton, about seven miles from Winchester, his seat. The grounds at Southampton House were also of his making.

Gardeners and foresters in his time were accustomed to ply about Westminster Hall and the Royal Exchange, offering trees, seeds, &c., for sale. In the first-named place, having commenced business as a nurseryman and seedsman, he kept a stand for the sale of his productions, bearing the sign of the Flower Pot, close by the entrance to

the Court of Common Pleas, and here is a copy of one of his bills for seeds sold to Lord Fairfax :

To the Rt. Honor'ble the Lord Fairfax,		Per Stephen Switzer.	
Feby. 27th, 1733			
		£	s. d.
3lbs. French furze seed, 3s. 6d. ;	½lb. Lucerne, 16s.	19	6
½lb. Dutch clover, 17s. ;	1 doz. garden mats, 8s.	1	5 0
10z. endive, 6d. ;	10z. white Cos Lettuce, 9d. ;	1	9
10z. alisander, 4d. ;	20z Spanish Cardoons, 18d. ;	3	4
10z. red cabbage, 1s. ;	20z. melon, gourd, &c., 2s. 6d.	3	6
½oz. tomato, 6d. ;	10z. finocchio, 1s.	1	6
20z. Turnip radish, 1s. ;	100 cytissus plants, 5s.	6	0
1 gallon Handers's Hotspur pea	2	0
2 qts. Marrowfat pea, 1s. ;	2 qts. Spanish <i>Mulatto</i> , 1s.	2	0
10z. Cauliflower seed, 3s. ;	1 peck Windsor beans, 2s.	5	0
	Box.. ..	1	6
		<hr/>	
		£3 11 1	

It is interesting to note the cost of his Dutch clover and lucerne seeds, which can be bought to-day at about one shilling a pound.

His garden was at Millbank. Where he resided I have been unable to determine, but he dates his "Disertation on the True Cytissus of the Ancients" in 1731 from New Palace Yard, Westminster. It is on record that he died in 1745.

It is an instance of the partiality of fame that of this intelligent man no contemporary authors make mention, whilst of others, infinitely his inferiors at every point, we have full particulars. This neglect, and even persecution, attended him through life. It appears from his own account in 1731 that some "great man some years deceased charged him with not finishing his work, and embezzling several hundred pounds, the falsity of which is visible, and speaks for itself." His brother traders also opposed him with considerable acrimony because he was not bred to trade. Neglect, says Johnson*, has pursued him beyond the grave, for his works are seldom mentioned or quoted as authorities of the age he lived in. To me he appears to be the best author of his time, and if called upon to point out the classic authors on the subject, Switzer should be one of the first on whom I should lay my finger. His works are evidence that he was a sound, practical man, well versed in the botanical science of the day in its most enlarged sense, of considerable classical and literary attainments, above all, that he was a religious character, and they completely warrant us in receiving as correct the modest notice he takes of himself in the preface to the first volume of "Iconographia Rustica." That by misfortune he had been reduced to a humble station in gardening he often indicates. From the above-mentioned preface we also learn that he had travelled on the Continent,

* "History of Gardening."

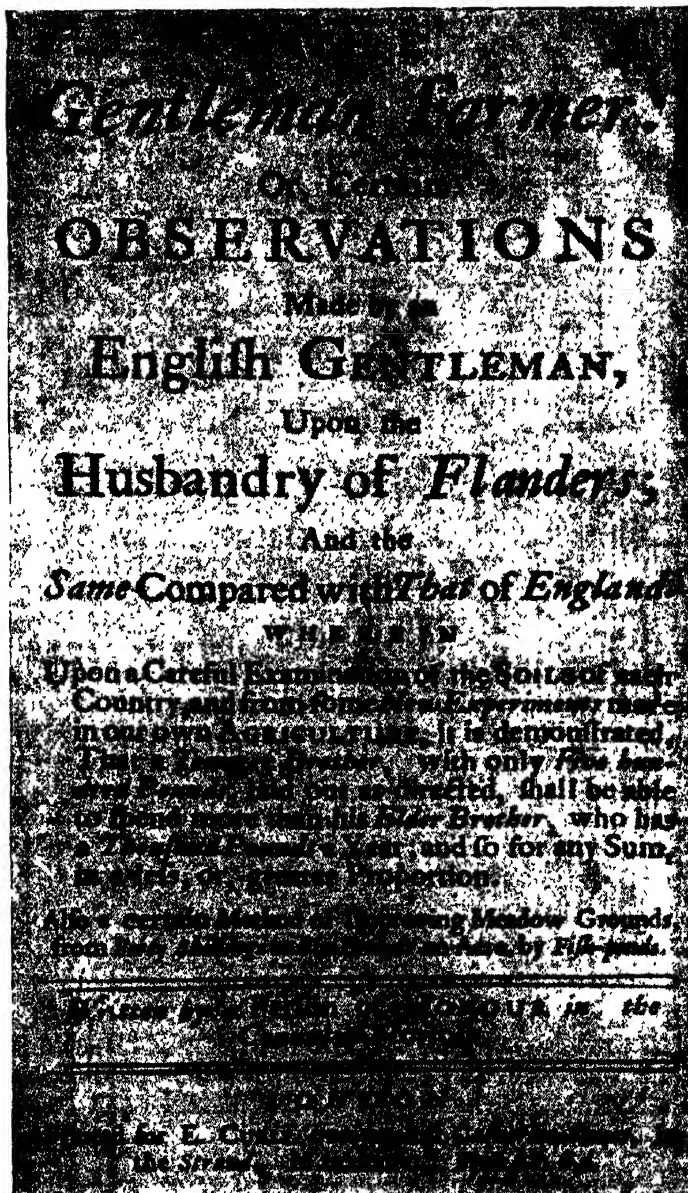
especially in France. This preface is throughout well worthy of perusal, independent of an eloquent though in places far too florid style, it breathes an appropriate feeling of love for his art, a spirit of candour in warning gentlemen of those errors both of expense and penury which were alike sure to defeat their object, in the ornamental disposition of their parks, or "extensive gardening," as he appropriately terms it, "a kind," he observes, "not yet much used with us." It is curious, among other warnings, to find him telling the landed proprietor to beware of Scotsmen, who even in his day appear to have been objects of jealousy, and caused him to forget his accustomed suavity.

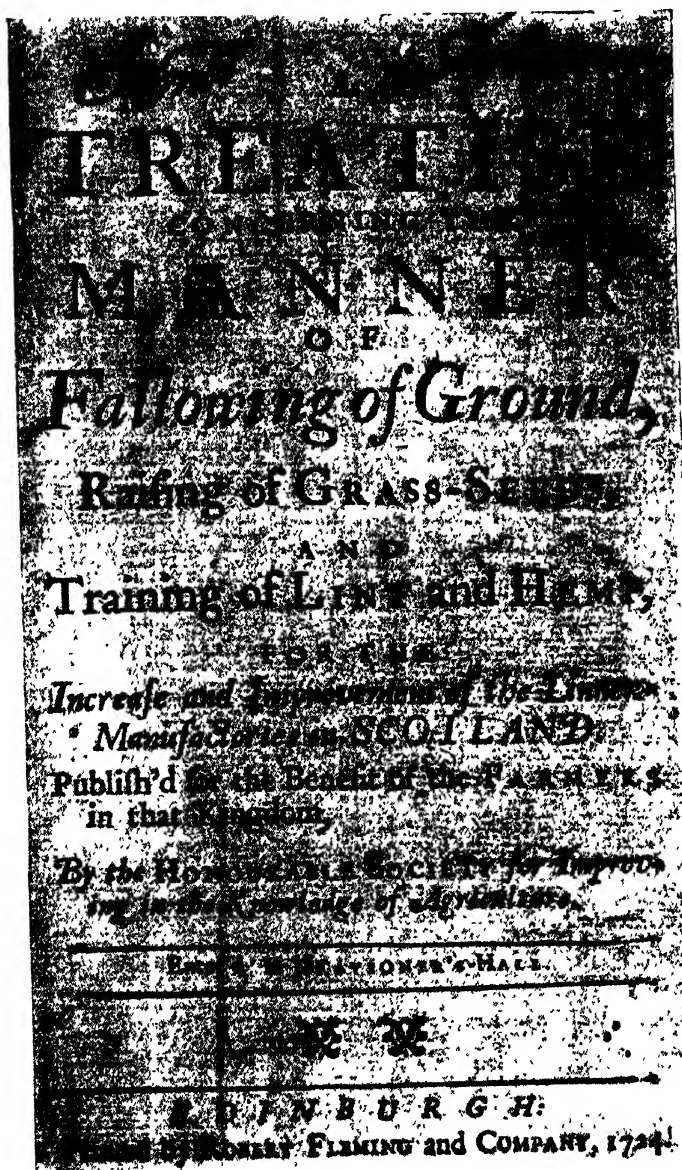


HON. ROGER NORTH.

1653-1734

THE little book, of which an illustration is given of the title-page on page 182 contains two parts; the first portion relates to farming and the remaining ninety-four pages to a discourse on fish and fishponds. It has been brought down to us as a fact that the last-named was written by Roger North, but there are doubts about the farming section, which it is believed by some was written by his brother Montague, who we know travelled on the Continent, for we read of him being imprisoned in France. Our author was a member of an important family, best known for centuries as holding high positions in connection with the law. Roger was born at Tostock, in Suffolk, in 1653, in the midst of turbulent times. His early days were spent at Thetford, and he entered at Cambridge in 1667. He then came to London, and was admitted at the Middle Temple in 1669, and soon became a prominent advocate. Directly after King William's accession he was offered a judgeship, but, after so many years of strenuous service at the Bar, he decided to retire to Rougham Hall, in Norfolk. The story goes that his friend the celebrated John Evelyn advised him to settle down on his estate and plant trees. The latter occupation he certainly went in for, because we are told that he formed groves and avenues of limes and ash, to which the local folks gave the name of North's Folly. He also spent a deal of time in reading and writing. In respect to his books it is on record that the only one which he printed was that on fishes above described, which first appeared in 1683. It will be noticed in my illustration that two brothers are referred to, and it is a curious fact that he and his brother Montague lived for years as bachelors together. In 1696, however, Roger entered the bonds of matrimony, the lady being Mary, daughter of Sir Robert





Gayer, by whom he had two daughters and one son. He died in 1734 at the age of eighty-one, and a monumental inscription on the south wall of Rougham Church records his many virtues.*

The book opens with an address to the reader bearing upon the text that a man must know his Creator before he betake himself to any worldly affairs, for without this knowledge "he ploweth and soweth in vain." The soils of Flanders and England are compared, and the value of flax extolled. The cost of preparing the land for this crop is put at £156 for 25 acres, and the return at £918. Turnips are thought to be a valuable crop, but to make cattle eat them it was considered necessary "to breed them up from their dams by hand," and horses had been seen that declined grass directly sliced carrots were put before them, which they ate like hogs. (I believe some of the railway companies feed their horses largely on carrots to-day.) In Flanders, it is stated, they have a kind of sheep that ordinarily bring five or six lambs apiece by feeding the ewes with roots, and he recommends the same breed to be brought over here. The Bruges capon is stated to be as large as two English capons. "The veal, too, is very white, because the calves are given as much new milk as they can drink twice a day." The pigeons were fed with buckwheat and flax, which made them breed apace. It is suggested that all this information is very useful for a younger brother to know, that he may keep himself properly until he attained to his eldest brother's estate. The culture of flax is next detailed. A way to make infinite profit by skarots—carrots are probably intended—and all about Roman beans, which are made out to be very remunerative. This portion of the book finishes with a statement referring the reader to the elaborate treatise which follows on the management of fish, written by a person of honour and great worth in the county of Norfolk.

SOCIETY FOR IMPROVING KNOWLEDGE IN AGRICULTURE IN SCOTLAND.

The photograph on page 183 refers to an intelligently written book of 173 printed pages, containing chapters upon the various subjects mentioned, with others on weaving, bleaching, and spinning, and references to many Acts applying specially to planting and manufacturing linen cloth, with diagrams of French and Dutch looms, and tools for flax dressing, and the upkeep of highways, bridges and ferries.

* "The Autobiography of the Hon. Roger North." Edited by Augustus Jessopp, D.D. London. 1887. 8s. Another edition in "The Lives of the Norths." Edited by A. Jessopp. Vol. 3. Bohn's Standard Library. 1890.

T H I

Horfe-Hoing Husbandry :

O R , A N

E S S A Y

On the PRINCIPLES of

TILLAGE and VEGETATION.

Wherein is shewn

A METHOD of introducing a Sort of *Vineyard-*
Culture into the Corn-Fields,

In order to

Increase their Product, and diminish the common Expence,

By the Use of

INSTRUMENTS designed in CUTS.

By I. T.

Cum Privilegio Regie Majestatis.

L O N D O N :

Printed by J. Smith, at the Angel, in Cornhill, and Sold by G. Strahan in Cornhill, J. Woodward
in Pall-mall, A. Miller over against St. Clement's-Church in the Strand, J.
Barrow in Warwick-Lane, and J. Brindley in New-Bond-Street.

MDCCLXXXIII.

JETHRO TULL.

1674-1740.

IN any list of distinguished English farmers this writer must always hold an important position, for, utterly regardless of all selfish considerations, he not only made great and successful efforts for the promotion of agriculture, but he conducted those valuable researches particularly known in the book of which I reproduce the title-page of two editions, a work that will hand him down to all ages as a patriot, who, undaunted by the natural difficulties of the attempt, attained great and important advances in cultivating and increasing the fertility of the land, and in enlarging the resources of the follower of a profession to which he was not originally bred; yet, knowing as he did the correctness of the principles for which he so nobly contended, he never relaxed his endeavours to induce their general adoption, and, as with many before him, it was only after the lapse of many years, when Tull had long been in his grave, that those principles and the mechanical inventions which he created were commonly adopted.

He was the unwearied advocate of drill sowing and frequent hoeing—the greatest improvements which have been introduced into the modern practice of tillage. The saving of seed effected by this practice is no small consideration, for let it be remembered that millions of acres are annually sown to grow food for man and his assistant animals, and that by drilling more than one-third of the requisite seed is saved. But this is of trivial importance when compared with the facility that drilling affords for the destruction of weeds and loosening the soil by the hoe. Every weed is really a robber depriving cultivated plants of a portion of their nourishment, and hindering them from light and air. The benefit derivable from the practice of loosening the soil is too well known to need repetition. Before Tull's time thick sowing broadcast and the scanty employment of the hoe were the custom of the day, and when Tull adopted and published a work recommending a practice totally the reverse, though many came to see his "new system of husbandry," yet they for the most part derided it, and his very labourers thwarted him in "his new-fangled ways." Yet he wrestled firmly and undauntedly against all difficulties. Tull was educated at Oxford, and admitted a student of Gray's Inn, being ultimately called to the Bar, but acute disease drove him from a sedentary life, yet not into idleness. During his travels in search of health he directed his attention to the agriculture of the countries through which he passed, and, finding that in France they never manured their vineyards, he rashly concluded that all plants might be similarly treated. Like many other inventors, he

Horse-Hoeing Husbandry:
OR,
An ESSAY on the PRINCIPLES
OF
Vegetation *and* Tillage.

Designed to introduce
A NEW METHOD of CULTURE;
WHEREBY
The Produce of Land will be increased, and the
usual Expence lessened.
Together with
Accurate DESCRIPTIONS and CUTS of the Instruments
employed in it.

By JETHRO TULL, Esq;
Of Shalborne in Berkshire.

The THIRD EDITION, very carefully Corrected.

To which is prefixed,
A New PREFACE by the EDITORS, addressed to all
concerned in AGRICULTURE.



L O N D O N:
Printed for A. MILLAR, opposite to Catherine's Street,
in the Strand.

Jethro Tull. See opposite page.

arrived at some conclusions not justified by his experiments, and among these errors was the opinion that hoeing and pulverising the soil might supersede the use of manure altogether ; but he lived to see his mistake, and, what is still more worthy, to acknowledge it.

He first of all settled down on a paternal farm at Crowmarsh, near Wallingford, but gave this up after a few years and went abroad. Upon returning to England, he occupied his own farm of Prosperous at Shalborne, in Wiltshire, and commenced that warfare to win success against adverse circumstances which only ceased with his death. The tradition of his neighbourhood is that when confined to his couch by incurable maladies he carried on his experiments in boxes placed before his windows, sowing his seed and trying his surface-stirring processes with all the enthusiasm of an inventor. He shared the fate of all those who, as discoverers, have the temerity to disturb old systems. He was ridiculed, thwarted, and opposed in every way even by those who ought to have known better, and although his neighbours pronounced him a lunatic, everything one can find connected with the history of this great benefactor to agriculture is to-day of the greatest interest to the farmers of this and all other countries. His horse-hoe system taught the farmer that deep ploughing and pulverisation of the soil render a much smaller application of fertilisers necessary, and his drill has saved in seed alone the food of millions.

Certain chapters of his only book that I am acquainted with, "The Horse-hoe Husbandry," were published in quarto in 1731, the chief volume in 1733, in folio, and in the same year some additions were printed which are not found in many of the copies of that year, or even in that of later ones. Cobbett, however, was careful to add it to an octavo edition, which he printed in 1829. In this he omitted only the plates of the ploughs and other agricultural implements, but he added an introduction, in which he eulogises Tull and vituperates those who had adopted Tull's plans without acknowledging the source of their obligation, not remembering that many a Tullian improvement has often been made, since our author's time, by plain, practical farmers who never even heard the name of Tull mentioned. As before stated, Tull published an addenda to his husbandry in the same year that the first large edition appeared—1733. In this he takes more notice than was perhaps necessary of certain attacks which had been made upon his book by the members of a certain "equivocal society," amongst whom was the celebrated Stephen Switzer, the most talented seedsman, gardener, and horticultural author of the days. It appears, too, that a society of gentlemen in Dublin had, without his leave, reprinted for distribution his "specimen chapters," all of which annoying circumstances evidently irritated him. Besides these controversial notices, the long addenda does not contain anything very valuable. Time has settled pretty well the respective

GEORGE

GEORGE the Sixth, by the Grace of God, King of Great Britain, France, and Ireland, Defender of the Faith, &c. To all to whom these shall come, Greeting. Whereas our Trusty and Wellbeloved, Jethro Tull of Sharncliffe, in the County of Berks, Esq. has humbly represented unto Us, That he has, with great Labour and Expence, made Plates illustrating new Instruments of Husbandry, invented by himself, and composed a Book, containing the Result of divers Observations and Experiments made by him during the Course of many Years, the Publication of which he conceives will be of publick Use and Benefit, Entitled, ["The Horsemanship Husbandry, or an Essay on the Principles of Tillage and Vegetation: Wherein is shewn, a Method of Introducing a Sort of Vineyard-Culture into the Corn-Fields, in order to increase their Product, and diminish the common Expence, by the Use of Instruments, described in Cuts."] And has humbly besought Us to grant him Our Royal Privilege and License, for the sole Printing and Publishing thereof, for the Term of fourteen Years; We being willing to give all due Encouragement to so useful a Work, are graciously pleased to condescend to his Request; and do therefore by these Presents, so far as may be agreeable to Law, grant unto him the said Jethro Tull, his Executors, Administrators and Assigns, Our License for the sole Printing and Publishing the said Book, for the Term of fourteen Years, to be computed from the Date hereof; strictly forbidding all our Subjects within our Kingdoms and Dominions to Reprint or Abridge the same, either in the like or any other Volume or Volumes whatsoever; or to import, buy, vend, utter, or distribute any Copies thereof reprinted beyond the Seas, during the aforesaid Term of fourteen Years, without the Consent or Approbation of the said Jethro Tull, his Heirs, Executors, and Assigns, under their Hands and Seals first had and obtained, as they will answer the contrary at their Perils; whereof the Commissioners and other Officers of our Customs, and the Master, Wardens and Company of Stationers are to take Notice, That Obedience be rendered to our Pleasure herein declared. Given at Our Court at St. James's, the twenty ninth Day of January, 1731, in the Sixth Year of our Reign.

By His Majesty's Command

HOLLES NEWCASTLE

merits of the contending parties. The fame of Tull has steadily increased, while the name and works of the classical Switzer are too little known amongst modern cultivators.

Jethro Tull died in 1740, and was buried at Basildon, in Berkshire. Like many more exponents of fresh ideas who came before their time, the value of his work remained unacknowledged until many years after his death, this is the more surprising because his son, John Tull, was a writer and a man of enterprise, to whom England was indebted for the first introduction of post-chaises and the establishment of fish markets in London. The best account of his life, times, and teachings is that by Earl Cathcart.*

It was only about thirty years after the death of Jethro Tull that Arthur Young arose as the great apostle of mixed agriculture. What he taught was that in English farming grazing was of primary, and arable management of only secondary, importance. Still, he was fully impressed that the proportioned farm, of all others, was the most profitable, and that in the origin of the four-field system, not acreage, but relative produce, was to form the basis of apportionment in order to maintain that cardinal requisite—the equilibrium of summer and winter provender. Even in his enlightened days he was not above the prejudices that prevailed generally against the new husbandry, as Tull's system came to be called, and he prophesied many things; but he lived long enough to see cause for retracting most of his objections, and I consider he would be a clever man who could contradict the fact that Jethro Tull was the originator of the first English drill-sowing machine for use with corn or fallow crops, and that kind of interculture peculiar to the fallow crops, and that his principles have not been introduced into the practice of every enlightened farmer in Great Britain, and as Arthur Young himself says in his "*Annals of Agriculture*,"† "He has left a name in the world which probably will last as long as the globe we inhabit."



ARTHUR YOUNG.

1741-1820.

ON September 11th, 1741, was born Arthur Young, of whose writings it has been justly said, that "they produced more private losses and more public benefit than those of any other author." They occasioned those losses by tempting the unpractised to become farmers, and the farmers to try unprofitable experiments; and they occasioned

* See *Journal of the Royal Agricultural Society*, March, 1891.

† Vol. XXIII., p. 172.

James Russell

THE
Farmer's INSTRUCTOR;
OR, THE
HUSBANDMAN *and* GARDENER'S
USEFUL and NECESSARY
COMPANION.

BEING
A New TREATISE of HUSBANDRY, GARDENING, and other curious Matters relating to COUNTRY AFFAIRS.

CONTAINING
A Plain and Practical METHOD of improving all Sorts of *Meadow, Pasture, and Arable Land, &c.* and making them produce greater Crops of all Kinds, and at much less than the present Expence.

WITH
Many New, Useful, and Curious IMPROVEMENTS, never before Published.

First begun by
SAMUEL TROWELL, Gent.

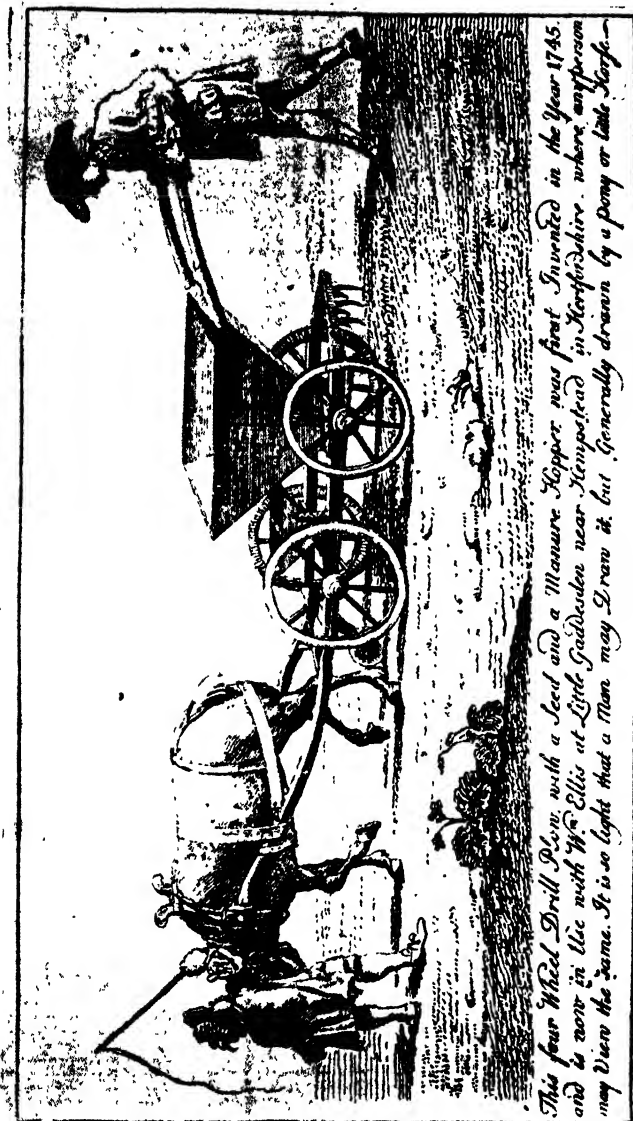
AND
Now compleated with a SUPPLEMENT to every CHAPTER on HUSBANDRY; giving an Account how poor Land, not worth above Five Shillings an Acre, may be made to bear as good Crops of Grain, Grass, &c. as the richest, after a very cheap Manner of Performance, by the Use of a New-invented Excellent Four-Wheel Drill-Plough, which carries on it a Seed-Hopper and a Manure-Hopper, with a little Harrow; all which are so light, that a Man may easily draw it.

By **WILLIAM ELLIS, Farmer,**
At *Little-Gaddesden, in Hertfordshire.*

L O N D O N:
Printed for J. HODGES, at the *Locking-Gilts, over-against*
St. Martin's Church, in the Strand.

public benefit even by the wisdom gained from those failures, but still more by diffusing agricultural knowledge among the cultivators of the soil. "We will not assert," says one critic, "that in all cases his conclusions were correct, or his judgment unimpeachable, but even his blunders, if he committed any, have tended to the benefit of agriculture, by exciting discussion and criticism." Let us add, that every gardener, every farmer, and every amateur confers a benefit upon his fellow cultivators by recording his failures as well as his successful experiments,—just the same as a lighthouse is equally valuable whether it 'shows the rock to be avoided or the harbour for which we are to steer. He was descended from a very respectable family, who resided upon their estate at Bradfield, Crowhurst, Bury St. Edmund's. His father was the Rector there. He was educated at Lavenham and entered a merchant's office at Lynn. From childhood Mr. Young had a great fondness for farming, and exhibited at least an equal power for literary composition; yet the great mistake was made of spending some hundreds of pounds, and as effectually wasting a still greater number of his days, in endeavouring to break down his mind to the craft of a wine merchant.

Nature was invincible; so that instead of devoting his thoughts to the topography of the European vineyards, and the art of rendering their produce agreeable to British palates, he wrote novels and a political pamphlet, the reward for which—ten pounds' worth of books from the publisher—was always remembered as causing a most memorable pleasure. Now occurred the death of his father; and he found himself, his apprenticeship being expired, his own master, with a freehold of 20 acres, producing as many pounds annually, and his mother in possession of 80 more acres, at Bradfield. She urged one willing to assent when she asked him to reside with her, and undertake the cultivation of her farm. He accepted her proposal, and the result may be told in his own words: "Young, eager, and totally ignorant of every necessary detail, it is not surprising that I squandered large sums under golden dreams of improvement." It is the less surprising, because he had a thirst for experiment without a knowledge of what is required to secure success. Undaunted by failure, and unsoubered by experience, he married unsuitably, and undertook the cultivation of Sampford Hall, in Essex. It embraced 300 acres of good arable land, yet want of capital, want of practical knowledge, and that still more bitter want—the want of "a help mete for him," drove him from the farm; yet the tenant, to whom he gave £100 to take the lease off his hands, realised upon it a fortune. Still unshaken from his love of the soil, he sought for another farm and the search furnished materials for his "Six Weeks' Tour through the Southern Counties"—a work popular, and passing through several editions, yet resulting to himself in no greater good at the time than



Frontispiece from Supplement in Samuel Trowell's "Farmer's Instructor." See page 191.

beguiling him into taking a Hertfordshire farm of 100 acres, by seeing it in a favourable season, and by its having a good residence attached.

This farm he has thus described—"I know not what epithet to give this soil,—sterility falls short of the idea of such a hungry, vitriolic gravel. I occupied for nine years the jaws of a wolf. A nabob's fortune would sink in the attempt to raise good arable crops in such a country." Finding that it would not return him a subsistence, he accepted an engagement as Parliamentary reporter for the *Morning Post*, a most incongruous employment for a farmer, because it compelled his absence from his home during six days of the week. Yet he retained it for several years—walking seventeen miles down to his farm every Saturday evening, and returning to London every Monday morning. "I worked," are his own words, "more like a coalheaver, though without his reward, than like a man acting from a predominant impulse." Passing over the publication of several of his agricultural tours, we come to the year 1784 when he commenced his "Annals of Agriculture," in which he appeared both as editor and author throughout its forty-five volumes, until blindness closed his literary labours. It had this guarantee of trustworthiness—no essay was admitted without the name and address of the writer. Its correspondents, consequently, are singularly eminent; and even George III. contributed to its seventh volume a report, under the name of "Ralph Robinson," of Mr. Duckett's farm at Petersham. His "Farmer's Kalender" was another remarkable book in its day, which ran through many editions, revised by many various authors, during last century. Undaunted by failure, Mr. Young was about to embark in the cultivation of a vast tract of waste land in Yorkshire, when in 1793 he was appointed to the Secretaryship of the newly established Board of Agriculture.

"What a change," he writes, "in the destination of a man's life! Instead of entering, as I proposed, the solitary lord of 4,000 acres in the keen atmosphere of lofty rocks and mountain torrents, with a little creation rising gradually around me, making the desert smile with cultivation, and grouse give way to industrious population, behold me at a desk, in the smoke, the fog, and the din of Whitehall. Society has charms—true; and so has solitude to a mind employed. The die, however, is cast; and my steps may still be, metaphorically, said to be in the furrow." But to "the furrow" the society did not exclusively attend. Its transactions were disfigured by political dissertations, and it consequently so lost the support and respect of a large portion of the agriculturists who differed from its political tenets, that it ceased to be useful. Government then withdrew from it the annual grant of £3,000; and in 1816 the Society ceased to exist. Mr. Young had not been able to perform the duties of Secretary for some years previously; and he did not long survive its failure, for he died in 1820, in the 80th year of his age, at Sackville Street, London, and was buried at Bradford.

Arthur Young was a person of ardent temperament and much vivacity of thought. His zeal, enterprise, and energy were quite characteristic of himself, and his labour was untiring and assiduity indefatigable. His services to agriculture were important, and the value would have been greater if he had confined himself to the sole object of agriculture, and avoided the political and party themes of which he was ever ready to be the champion and asserter.

The writings of Arthur Young contain a huge mass of miscellaneous information, which had no small effect on the progress of agriculture. It cannot be denied but that he reflected lustre on the age and country in which he lived, and that he filled a large space in the public eye for a long series of years. He was much esteemed abroad, and had many presents sent him from the occupants of thrones, and pupils came to him from various nations to be instructed by his precept and example. In the private relations of life he has never been impeached—his individual worth has met no accusation, and his moral integrity has never been assailed.

His characteristics have appeared as our brief narrative has proceeded ; and it is quite clear that his agricultural attainments were estimated more highly by foreigners than in his own land, for when the Duke of Bedford once breakfasted with Mr. Young, at Bradfield, there were also at the table pupils from Russia, France, America, Naples, Poland, Sicily, and Portugal. I cannot conclude without holding forward prominently that feature of his character, never found among the attributes of the vicious—his pure, unwavering affection for his mother. Full particulars of his life and career will be found in "The Autobiography of Arthur Young, with selections from his correspondence." Edited by Miss M Belham-Edwards. London, 1898. 8vo. 480 pages.



THE LITERATURE
AND
BIBLIOGRAPHY OF BRITISH AGRICULTURE.
1200 TO 1800.

· THE LITERATURE AND BIBLIOGRAPHY

OF

BRITISH AGRICULTURE.



THESE old agricultural writings and books are chiefly to be considered as historical documents of the progress of opinions and practices, and this is the reason I have arranged them as nearly in the order of their appearance as possible, instead of classing them according to the subjects treated of, which has been done in Watt's "Bibliotheca Britannica."

For Index of Names of Authors, see pages 225 to 228.

1200-1400.—Manuscripts found in various museums and college libraries.

HENLEY, SIR WALTER OF.

- Treatise on Husbandry Reproduced in English in *The Boke of Thrift*, 1589; and also by the Royal Historical Society in 1890. See page 11.

ANON HUSBANDRY. }
SENESCALCIA. } The writers of these are doubtful. See pages 7 and 8.

GROSSEFESFE, ROBERT

Treatise on Husbandry. Made and translated from the French. See page 11.

1480.—LITTLETON, THOMAS.

Tenures: a work on the law of real property.

The edition I possess is printed in book form and dated 1664. 8vo.

- 1523.**—FITZHERBERT, JOHN. Although all the biographers have brought down the author of this book as Sir Anthony Fitzherbert, there is now no doubt but that Sir Ernest Clarke, M.A., F.S.A., has proved conclusively that it was written by his brother. The question is fully discussed elsewhere. See page 13.
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A Newe Tracte or Treatyse moost Profytable for all Husbandmen.
Imprinted by Rycharde Pynson, London. Small 4to.

The Booke of Husbandry, Printed by Thomas Berthelet, London. 12mo. The earliest edition in the British Museum [1525?] is printed by P. Treverys. And again in 1534, 1548, 1555, 1560, 1562, and 1598. Other editions, including a special issue with notes and glossarial index by W. W. Skeat. 168 pages. 1882.

1537.—BENESE, SYR RICHARDE. Canon of Merton Abbey in Surrey.

The maner of measurynge all maner of lande. Printed by James Nicolson, London, 1540. 8vo. Printed by Thomas Colwell, London, 1562. 8vo. Again in 1564.

1556.—DIGGES, LEONARD.

A Booke named Tectonicon. briefly shewing the exact measuring and speedie reckoning a manner of Lande, Timber, &c. Small 4to. Other editions to 1692.

1557.—TUSSEY, THOMAS.

A hundreth good pointes of Husbandrie. Printed by R. Tottel. London. Small 4to.

Five hundred pointes of Good Husbandry. Printed by R. Tottel, London, 1573. Small 4to. Reprinted in 1576, 1577. Revised and printed by Henrie Denham, London, 1580. Small 4to. Various other editions, including 1593, 1614, 1620, 1630, 1710, and 1812. The whole series reproduced, with notes and glossary, by the English Dialect Society, London, 1878. 8vo.

1572.—MASCALL, LEONARD.

A Book of the Arte and manner, howe to plant and graffe all sortes of Trees. By one of the Abbey of St. Vincent in France, with an addition of certain Dutch practices, set forth and Englished by L. Mascall. Printed by Henrie Denham for John Wight, London, 1572. 4to. 1575. Various other editions to 1656.

The Husbandrie, ordering and Government of Poultrie. London, 1581. 8vo.

The Government of Cattell, 1596. London. 4to. Other editions to 1680.

1574.—SCOT, REYNOLDE.

A profite platforme of a Hoppe Garden. Printed by Henrie Denham London. 4to. Various later editions.

1577.—LEIGH, VALENTINE.

Most profitable and commendable science of Surveying of Landes, Tenements, &c. London, for Miles Jennings. Other editions, 1578, 1588, 1592.

—GOOGE, BARNABE.

Four Bookes of Husbandrie by M. Conradus Heresbachius. Newly Englished by B. Googe. Printed by Richard Watkins, London. Small 4to.

Other editions, 1586, 1596, 1601, up to 1658. See also Markham, 1607.

The Whole Art and Trade of Husbandry. Enlarged by B. Googe.

Printed by T. S. for Richard More, London, 1614. Small 4to.

1589.—BELLOT, JAMES.

The Booke of Thrift, containing a profite order and right method to profite lands and other thing^{es} belonging to Husbandry. Includes a reprint in English of Sir Walter of Henley's Husbandry. Printed for John Wolfe. Small 8vo.

1594.—PLAT, SIR HUGH.

The Jewel House of Art and Nature, containing sundry Experiments in the Art of Husbandry. Peter Short, London. 4to. Another edition, 1653.

The Newe and Admirable Arte of Setting of Corne. Peter Short, 1600 and 1601. 4to.

Sundrie New and Artificiall Remedies against Famine. Printed by P. S., dwelling on Bread-street Hill, at the signe of the Starre, 1596. Small 4to.

1598.—MANWOOD, JOHN.

A Treatise of the Lawes of the Forest. Thomas Wight and Bonham Norton.
London. 4to. Second edition, 1599. 4to.

1599.—CHURCHEY, G.

A new Booke of Good Husbandry translated from the Latin of Dubravius, Bishop
of Olmutz. Also treats upon fish. W. White, London. Small 4to.

1600.—SURFLEET, RICHARD.

• Maison Rustique, or the Countre Farme. Translated from the French of
C. Estienne. E. Bollivant for B. Norton. Small 4to. Another edition 1606.

1601.—God Speede the Plough. Author apparently unknown Printed for John Harison.
12 pages. London. 4to.

1607.—NORDEN, JOHN.

• Surveyor's Dialogue. Again printed by T. Snodham. 1618 4to.

—MARKHAM, GERVASE.

Cavelarice; or, the English Horseman. 4to. See page 88.

The Husbandman's Faithfull Orchard. 4to 1608, and again in 1609

Country Contentments; or, the Husbandman's Recreations. London, 1611. 4to.
This work is inscribed to Sir Theodore Newton, Knight. The first book
treats of Horses, with two new Treatises, the Arts of Hunting, Hawking,
&c., &c. The second is entitled the English Huswife. 1615. 4to. 1623, 1631,
4to. Fifth edition, 1633, 4to Sixth edition, London, 1639, 4to. 1640, 4to
1649, 4to. 1656, 4to. Newly corrected, enlarged, and adorned with many
excellent additions, 1675, 4to., 96 pages

The English Husbandman. Two parts in one. T S. for John Browne,
London. 4to 1613. Other editions 1614, 1615, and 1635.

The Country Farme. Identical with Surfleet, 1600, but augmented by G. M.
J. B. for Roger Jackson, London. Again, Adam Bliss for John Bill,
London, 1616.

• Farewell to Husbandry. J B for Roger Jackson, London, 1620. 4to Again in
1625, 1632, 1638, and 1649.

Cheap and Good Husbandry. London, 1614, 1621, 1623, 1633, 1648, 1668, 1683
and other editions. 4to.

Enrichment of the Weald of Kent. G. P. for R. Jackson, 1625, 1631, and
1636. 4to. 1675 and others.

The Whole Art of Husbandry. This appears to be a reprint of Barnabe Googe
1631.

A Way to Get Wealth. Several of his works in 1 vol 1628. 4to. Fifteen
editions up to 1684.

Markham's Maisterpiece. Mostly about horses. I only possess the 4th edition.
Imprinted by Nicholas Okes, 1631. 592 pages. 4to. Other editions,
1651 and 1683.

The Perfect Horseman; or, the Experienced Secrets of Mr. Markham's 50 years'
practice. Published by Lancelot Thetford, London, 1680. 12mo.

1610.—FOLKINGHAM, W.

Feudigraphia. The Synopsis or Epitome of Surveying Methodised. Printed for
R. Moore, London. 4to.

—VAUGHAN, ROWLAND.

Most approved and long experienced waterworks, containing the manner of winter
and summer drowning of Meadow and Pasture. Dedicated to Earl of
Pembroke. Printed by George Eld, London. 4to.

1611.—STANDISH, ARTHUR.

The Commons Complaint. On the planting of Timber and Firewood to suit the soil, and raise better cattle. Printed by W. Stansby, and again in 1613. 4to.

1612.—CHURTON, R.

An Olde Thrift Newly Revived, wherein is Declared the Manner of Planting, Preserving, and Husbandoing Yong Trees of Divers Kindes for Timber and Fuell, and of Sowing Acornes, Chesnuts, Beech-Mast, the Seedes of Elmes, Ashen-Keyes, &c., with the Commodities and Discommodities of Inclosing Decayed Forests, Commons, and Waste Grounds, and also to the use of a small Portable Instrument for Measuring of Board, and the solid Content and Height of any Tree Standing, Discoursed in a Dialogue betwene a Surveyour, Woodward, Gentleman, and a Farmer, divided into Foure Parts. Small 4to.

1626.—SPEED, A. or ADOLPHUS.

Adam out of Eden; or, An Abstract of divers excellent Experiments, touching the advancement of Agriculture. London. 12mo. For Henry Brome, 1659.

Husbandman, Farmer, and Grazier's Complete Instructor. London, 1697. 12mo For Henry Nelme. (See text.)

1634.—A Direction to the Husbandoingman in a new, cheape, and Easie way of Fertilizing, and Inriching Areable Grounds, by a mixture of certaine Native Materialls, in small quantities with the Seed to sow, and stroweing the same vpon the Ground sowed. VVherein is declared the Ordering and Preparation of the Materialls, the manner and proportion of mingling them with the Seed, and stroweing them upon the Ground: With fundrie other particulars tending to a full and plaine Instruction of such as shall desire to make use thereof . . . London, Printed by Auguſtine Mathewes. Sm. 4to.**1635.—CALTHORPE, CHARLES.**

The Relation between a Lord of the Manor and the Copyholder, his Tenant. London. 4to.

1636.—CRAWSEY, JOHN.

The Country-man's Instructor. London. 4to. See also 1661.

—GRYMES, THOMAS.

The Honest and Plaine dealing Farrier; or, a present remedy for curing diseases and hurts in Horses. London. 12mo.

1637.—REMANT, RICHARD.

A Discourse on Bees, whereunto is added the causes and cure of blasted wheat, hōps, rye, and fruit. Together with the causes of smutty wheat. Small 4to.

1638.—PLATTES, GABRIEL. Harte says he had a bold adventurous cast of mind, and preferred the faulty sublime to faulty mediocrity. As great a genius as he was, he was allowed to drop down dead in London streets with hunger.

Treatise of Husbandoing. London. 4to.

Discourse of infinite Treasure, hidden since the World's beginning, in the Way of Husbandoing. London, 1639. Printed for J. E. 4to.

Recreatis Agriculturæ. 1640. 4to. Again in 1656.

The Profitable Intelligencer. Containing many experiments in Agriculture. 1644. 4to.

Observations and Improvements in Husbandoing. Twenty experiments. London, 1653. 4to.

The Countryman's Recreation. T. Mabb. 1654.

- 1642.**—VERMUIDEN, SIR CORNELIUS, a native of Holland, and a colonel in Cromwell's army.
Discourses touching the Drayning the great Fenns lying within the several Counties of Lincolne, Northampton, Huntingdon. Norfolk, Suffolke, Cambridge, and the Isle of Ely. London. 8vo.
- 1645.**—HARTLIB, SAMUEL, an ingenious author. He was a great promoter of husbandry during the times of the Commonwealth, and was much esteemed. Milton addressed to him his treatise on education, and Sir William Petty inscribed two letters to him on the same subject. Sir R. Weston and others also helped him.
Discourse of Husbandry used in Brabant and Flanders, shewing wonderful Improvements of Land there. London. 4to. And again in 1650.
Legacy; or, an Enlargement on the Discourse of Husbandry used in Brabant and Flanders. With an appendix. 1651. 4to. London. Again in 1655.
Appendix to the Legacy, relating more particularly to the Husbandry and Natural History of Ireland. London, 1651. 4to.
Essay on the Advancement of Husbandry and Learning, with propositions for erecting a College of Husbandry. London, 1651. Printed by Henry Hills. 4to.
The Reformed Husbandman; or, a brief Treatise of the Errors, Defects, and Inconvenience of our English Husbandry, in ploughing and sowing for Corn; with the Reasons and general Remedies, and a large, yet faithful Offer or Undertaking for the Benefit of them that will joyn in this good and public Work. London, 1651. 4to.
An Invention of Engines of motion lately brought to perfection, whereby may be dispatched any work now done in England or elsewhere (especially works that require strength and swiftnes), either by Wind, Water, Cattell, or Men, and that with better accommodation and more profit than by anything hitherto known and used. London: Printed by T. C. for Richard Woodnoth next door to the Golden-heart, in Leaden-Hall-Street, 1651. Small 4to. The real author of this book was Cressy Dymock. See Reprint in Dirck's Life of Hartlib. London, 1865.
Design for Plenty, by a Universal Planting of Trees; tendered by some well-wishers to the Public. London, 1652. 4to.
Discovery for Division or Setting out of Waste Land in England and Ireland. London, R. Woderothe, 1653. 4to.
The Complete Husbandman; or, a Discourse of Husbandry, both Foreign and Domestic. And a particular Discourse of the Natural History of Husbandry in Ireland. London, 1659. 4to.
- 1649.**—BLITH, WALTER.
The English Improver, discovering that some land, both Arable and Pasture, may be advanced Double and Treble, and some Five and Ten-fold. London. 4to.
The English Improver improved; or, the Survey of Husbandry surveyed. London, 1652. 4to. Again in 1653.
- 1650.**—LEYBOURN, WILLIAM.
In 1650 appeared Planometria; or, the Whole Art of Surveying of Land, by "Oliver Wallinby," the pseudonym being a mere transposition of the letters of Leybourn's name. This was republished with additions and acknowledged by its author in 1653, under the title The Compleat Surveyor. It passed through four editions in his lifetime; a fifth edition appeared in 1722, edited by Samuel Cunn. Second edition, 1657. Third edition, 1674.
- 1653.**—AUSTEN, RALPH.
A Treatise on Fruit Trees, and directions for planting Woods. Oxford. 4to. Further editions, 1657, 1662, 1667.
- BREAD FOR THE POOR. R. and H. Leybourn.

1656.—LEE, REV. JOSEPH.

A vindication of a regulated enclosure of Commons. London. 4to.

1657.—SHA, J.

Certain plaine and easie demonstrations for the improvement of lande. London. 4to.

1658.—EVELYN, JOHN, F.R.S. An eminent philosopher and patriot, particularly skilled in natural history and the fine arts, was born at Wotton, his father's seat, in 1620; and died, and was interred there, in 1705-6.

Sylva; or, a Discourse of Forest Trees. London, 1664. Folio. Dr. Hunter of York, published an edition with copious notes and numerous engravings in 1776.

Terra: a Philosophical Discourse of Earth, relating to the Culture and Improvement of it for Vegetation, and the Propagation of Plants, as it was presented to the Royal Society, April 29, 1675. London, 1675. Folio.

Pomona: a Discourse concerning Cider. London, 1679. Folio.

A Spanish Drill Plough. (Phil. Trans. Abr. i. 457.) 1670.

1659.—DUCKETT, THOMAS.

Proceedings concerning the improvement of all manner of land.

1661.—STEVENSON, M.

The Twelve Moneths. A curious book of 59 pages. Small 4to.

—CRAWSEY, JOHN.

The Good Husband's Jewel; or, Plain and easy directions how to know the means whereby Horses, Beasts, Sheep, &c., come to have many diseases, and the way to cure them perfectly, &c. Yorke. 8vo. Fifth edition.

1662.—MILES, ABRAHAM.

The Countryman's Friend. Cure of diseases to men and animals. London. 8vo.

—ATWELL, G.

The Faithful Surveyor, or discovering divers errors in land measuring Cambridge. Folio.

—DUGDALE, SIR WILLIAM.

The History of Embanking and Draining of divers fens and marshes, &c., adorned with sundry maps. London, printed by Alice Warren. 424 pages. Folio.

1663.—YARRANTON, ANDREW.

The Great Improvement of Land by Clover. London. 8vo. 46 pages.

England's Improvement by Sea and Land. London, 1677. 4to.

—STRANGEHOPE, SAMUEL.

Book of Knowledge, in Three Parts; concerning Astrology, Physic, and Husbandry. London. 8vo. Another edition, 1675. 8vo.

1664.—FORSTER, JOHN.

England's Happiness increased, &c., by a plantation of roots called Potatoes. London. 4to.

1665.—DODSON, COLONEL WILLIAM.

The Design for the Perfect Draining of the great Level of the Fen, called Bedford Level, with Maps, &c. London. 4to.

—REA, JOHN.

Flora, Ceres et Pomona. Folio. Another edition in 1676.

1667.—CAVENDISH, WILLIAM, Marquis and Duke of Newcastle.

A New Method and extraordinary invention to dress Horses, and work them according to Nature; as also to perfect nature by the subtilty of Art. London. Folio.

1669.—WORLIDGE, JOHN.

Systema Agricultura, &c. Published for the Common Good. London. Folio.

Other editions, 1675, 1681, and in 1687, 1697, 1698, and 1716 in 8vo.

Treatise of Husbandry. London, 1675. Folio.

—BLAGRAVE, JOSEPH.

The Epitome of Husbandry. (Mostly copied from Fitzherbert and other early writers.) London. 12mo. Other editions, 1675, 1678, and 1685. Small 8vo.

—FLAVELL, JOHN.

Husbandry Spiritualized; or, the Heavenly Use of Earthly Things, consisting of many Pleasant Observations, Pertinent Applications, and Serious Reflections, and each chapter concluded with a Divine and suitable Poem, directing Husbandmen to the most excellent improvements of their common Employments, whereunto are added, by way of Appendix, several choice Occasional Meditations upon Birds, Beasts, Trees, Flowers, Rivers, and several other objects, fitted for the help of such as desire to walk with God in all their solitudes and recesses from the World. Small 4to. Another edition, 1674. Small 4to.

1670.—SMITH, JOHN, Governor of the English Plantations, was born at Willoughby, in the county of Lincoln.

England's Improvement revived, plainly discovering the several ways of improving the several Sorts of waste and barren Grounds, and of enriching all Earths with the natural quality of all Lands, and the several Seeds and Plants which naturally thrive therein observed, together with the Manner of Planting all sorts of Timber Trees and Underwoods, experienced in 30 Years Practice; in 6 Books. London. 4to. Another edition in 1673. See also 1704.

Improvement of Barren and Heathy Land. R. Royston.

—REEVE, GABRIEL.

Directions to his Son for the Improvement of Barren and Heathy Land in England and Wales. London. 4to. Another edition, 1674.

1673.—KIRBY, CHRISTOPHER.

Strange Effect of Thunder and Lightning on Wheat and Rye in the Granaries of Dantzic. (Phil. Trans. Abr. ii. 89.)

—HARWARD, MICHAEL.

The Herds-man's Mate; Or, a guide for Herds-men, Teaching how to Cure all Diseases in Bulls, Oxen, Cows, and Calves, &c. Dublin. 3vo.

1674.—PETTUS, SIR J.

St. Foine Improved. London, 1674. Small 4to. (See text.)

—GOXE, DANIEL, M.D.

Improvement of Cornwall by Sea Sand. (Phil. Trans. Abr. ii. page 206).

1676.—SHERLEY, T.

Cochlearia Curiosa, or the Curiosities of Scurvy Grass. Folding plate.

—COOK, MOSES.

The Manner of raising Forest Trees. London. 4to.

1676.—LAMBERT, JAMES.

The Countryman's Treasure: Showing the Nature, Cause, and Cure of All Diseases of Cattle. London. 8vo. Another edition in 1683.

1677.—BURY, REV. E.

The Husbandman's Companion: A book of meditation. Small 8vo.

—L'ESTRANGE, SIR ROGER.

A Treatise on Wool and Cattel. London. 8vo.

—BEAL, DR. JOHN, an ingenious English divine and philosopher, was born in Herefordshire, 1603; died 1683.

Agrestic Observations and Advertisements. (Phil. Trans. Abr. ii. 374 and 384.)

1678.—HOWARD, HON. CHARLES, of Norfolk.

On the Culture of Planting and Ordering of Saffron. (Phil. Trans. Abr. ii. 423.)

1681.—LANGFORD, T.

Systemæ Agriculturæ; being the Mystery of Husbandry discovered. London. 4to

—HOUGHTON, JOHN, F.R.S.

A Collection of Letters for the Improvement of Husbandry and Trade. London. 4to.
Collections for the Improvement of Husbandry, relating to Corn.

A Catalogue of all Sorts of Earths; the Art of Draining, of Brewing, the Instruments of Husbandry: revised by R. Bradley. London, 1727-8. 4 vols. 8vo.

1683.—LISTER, MARTIN, M.D., an eminent physician and natural philosopher, was born in Buckinghamshire about 1638, practised in London; died 1711-12.

Of Plants which may be usefully cultivated for grass or hay, 1696. (N. Abr. iv. 136.)

1684.—BEAUMONT, JOHN.

On a new way of Cleaving Rocks. (Phil. Trans. Abr. iii. page 113.)

1685.—MOORE, SIR JONAS, Knight, F.R.S., Mathematician and surveyor general of his Majesty's ordnance.

History or Narrative of the great Level of the Fens called Bedford Level; with a large Map of the said Level, as drained, surveyed, and described. 8vo.

England's Interest; or, the Gentleman and Farmer's Friend. London. 1703. 8vo.

1686.—BLOME, RICHARD.

The Gentleman's Recreations.

Agriculture or Husbandry. With plates. London. Folio.

1694.—FLOYD, EDWARD.

Account of Locusts in Wales. (Phil. Trans. Abr. iii. page 617.)

On the spontaneous Combustion of several Hay Stacks, &c.

1696.—MATHER, W.

On Repairing and Mending Highways: An Essay of 32 pages.

—BELLERS, JOHN.

Proposals for Raising a College of Industry of all usefull Trades and Husbandry with profit for the rich and a plentiful living for the poor. 28 pages. 4to.

1697.—DONALDSON, JAMES

Enquiry into the present manner of Tilling and Manuring the Ground in Scotland. Edinburgh. 12mo.

1697.—MEAGER, LEONARD.

The Mystery of Husbandry. London. 12mo.

1700.—NOURSE, TIMOTHY; or, Campania Felix, .

a Discourse on the Benefits of Husbandry. London. 8vo. Another edition in 1706.

—TRYON, THOMAS.

The Countryman's Companion; a New Method of ordering Horses and Sheep so as to preserve them from Diseases and Causalties, and particularly to preserve Sheep from that Monsterous Mortifying Distemper the Rot, by Philotheus Physiologus. 12mo.

1704.—SMITH, J.

Profit and Pleasure United; or, the Husbandman's Magazine. London Bridge, 1704. 8vo. (See text.)

1705.—PLOT, ROBERT.

A Natural History of Oxfordshire. 2nd edition. Oxford. Folio.

1707.—FLEETWOOD, BISHOP WILLIAM.

Curiosities of Nature and Art in Husbandry. Translated from the French. London. 8vo. Further editions were printed in Paris, Brussels, and in Germany from 1703 to 1749.

—MORTIMER, JOHN.

The whole Art of Husbandry in the way of Managing and Improving Land. London. 8vo. Other editions, 1708, 1712, 1716, 1721, 1761.

1716.—BRADLEY, RICHARD, F.R.S., a voluminous writer.

Philosophical Treatise of Husbandry and Gardening. London, 1717. 4to.

The Country Gentleman and Farmer's Monthly Director. London, 1718 and 1726. 8vo. And 1732

Treatise concerning the Manner of Fallowing Ground, raising of Grass, Seeds, and Training of Lint and Hemp. London, 1724. 4to.

A Survey of Ancient Husbandry and Gardening, collected from the Greeks and Romans. 4 Plates. London, 1725. 8vo.

General Treatise of Husbandry and Gardening. London, 1726. 2 vols. 8vo. And 1728.

Experimental Husbandman and Gardener. London, 1726. Folio.

A Complete Body of Husbandry. London, 1727. 8vo. This date is the second edition.

The Weekly Miscellany for the Improvement of Husbandry, Arts, and Sciences. 21 Nos. 1727. 8vo.

The Science of Good Husbandry; or, the Economy of Xenophon. Translated from the Greek. London. 1727. 8vo.

The Gentleman's and Farmer's Guide for the improvement of Cattle. 1729.

The Riches of a Hop Garden explained, with the Observations of the most celebrated Hop Planters in Britain. London, 1729. 8vo.

1717.—LAURENCE, EDWARD, brother to John Laurence, a clergyman. (See 1726.)

The Duty of a Steward to his Lord; with an Appendix on Farming. Addressed to Her Grace the Duchess of Buckinghamshire. London, 2nd edition, 1727. 4to. 3rd edition in 1743. 4to.

—JACOB, GILES

The Country Gentleman's *Vade Mecum*. London. 8vo.

1718.—SWITZER, STEPHEN.

Directions for Burning Clay for Manure. London. 8vo.

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Virgil's Husbandry; with Notes Critical and Rustic. London.

—MILLER, PHILIP

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